

THE IRON AGE

A Review of the Hardware, Iron and Metal Trades.

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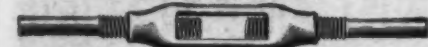
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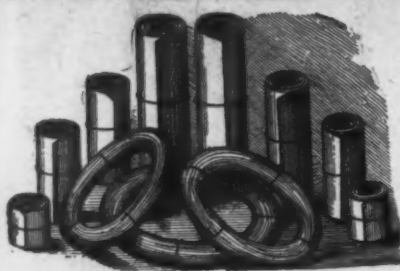
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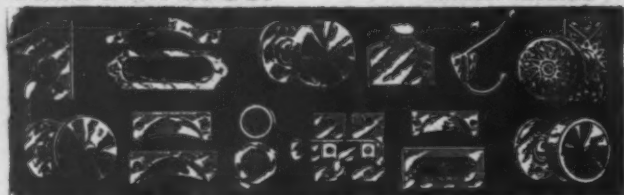
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THE IRON AGE.

THURSDAY, JUNE 15, 1899.

Lap Welded Pipe for South Africa.

Our engraving shows a lot of 28-inch bump joint lap welded pipe ready for shipment to South Africa, made by the National Tube Works Company, from their mills at McKeesport, Pa. A contest between lap welded and riveted pipe was brought about by this contract and lap welded pipe came out ahead. The order was for 53,520 feet of 28-inch outside diameter lap welded pipe, 7-16 inch, fitted with a bell and spigot joint, to be riveted in the trench, the bell being formed by expanding one end of the pipe and fitting the other end into it. The order was taken in competition with the world, as the original inquiries asked the mills in Germany, Eng-

the average weight per length of finished pipe 2700 pounds. The average weight per foot was 138 pounds and the total number of pieces shipped 2782. This is the largest order of lap welded ever made, and is the first successful competition between lap welded and riveted pipe. The order was taken by the offices of the National Tube Works Company in London, England, and the pipe was shipped to the Rand mines in South Africa.

The Panama Canal Commission.

The President of the United States has named the following commission created by the River and Harbor



LAP WELDED PIPE FOR SOUTH AFRICA.

land and the United States to figure on 30-inch riveted pipe. The National Tube Works Company were successful in securing the order, because they claimed and proved that 28-inch lap welded pipe will deliver as much water as a 30-inch riveted pipe, and because no other concern would promise as early delivery for riveted pipe as was guaranteed by the National Tube Works Company for welded. In order to induce the National Tube Works Company to expedite delivery the purchasers agreed to pay a considerable bonus should delivery be made at New York on or before June 30. The order was received in McKeesport February 14. The first plate was received by the National Tube Works Company on February 27; they started a furnace on the order on March 23 and the first shipment of pipe was made on March 25. The last plate was received on May 30 and the furnace completed the order on June 5, the last shipment of pipe being made June 7. The average weight of each plate was 2873 pounds and

act, to determine the most feasible and practicable route for a canal across the Isthmus of Panama: Rear-Admiral John G. Walker, chairman; Samuel Pasco of Florida, Alfred Noble, C.E., of Chicago; George S. Morrison, C.E., of New York; Col. Peter C. Hains, U. S. A.; Prof. William H. Burr, head of the Department of Engineering at Columbia University, New York; Lieut.-Col. Oswald H. Ernst, Engineering Corps, U. S. A.; Prof. Lewis M. Haupt of Philadelphia, late Professor of Civil Engineering at the University of Pennsylvania, and Prof. Emory R. Johnson of Pennsylvania. Rear-Admiral Walker, Colonel Harris and Mr. Haupt are members of the present Nicaragua Canal Commission. The new commission is authorized by Congress to make such full and complete investigation as to determine the most feasible and practicable route across said isthmus for a canal, together with the cost of constructing the same and placing the same under the control, management and ownership of the United States. The sum of \$1,000,-

000 is appropriated to enable the investigation to be made, and to provide compensation for the commissioners, which is to be fixed by the President.

The 500-Foot Lake Vessels.

A. B. Wolvin, whose order for four 500 footers for lake ore service has excited more comment along the lakes and among ore men than any recent event in this fast moving day, gives some additional particulars as to the ships. Their lines have not been laid, and so it is impossible to tell just what they will carry or what their speed will be, but it is safe to say they will each load 9000 net tons, if not more, perhaps 300,000 bushels of wheat. It is easy to make a difference of 400 or more tons in the capacity of a ship of the size of these by the change of lines at bow and stern, but it is probable that these ships, like those planned and built to Mr. Wolvin's orders heretofore, will have the maximum capacity commensurate with safety, strength and economical speed. All will be steamers, for Mr. Wolvin does not favor the tow barge idea, under which a single steamer will pull one to three barges carrying an immense combined load, and in this he differs from many of the leading shipowners of the lakes. The Minnesota Steamship Company are fitting out all their steamers with barges, the American Steam Barge Company have from one to two barges for every steamship, the Bessemer Steamship Company are arranging a barge for every steamer and expect to have two 7500-ton barges behind each of their new 7000-ton steamers, while such private firms as Pickands, Mather & Co. and other big lake interests are following the same methods. "But," says Captain Wolvin, "we are carrying ore as cheaply as any of them, perhaps less than some, and we have no barges, every load of freight having an engine to pull it." Running alone a steamer can be made lighter, carrying more tons of load for her cost and power, can save time at docks, need lose nothing waiting for consorts, and need travel nowhere except between ports where her own cargoes are handled. These four new 500-footers are to be each 52 feet beam and 30 feet deep, 2 feet wider and 1½ feet deeper than anything afloat. Their nearest competitor in length is one ship now building for the Bessemer Company of 485 feet over all. There will be about 4000 tons of metal in each of these new ships, and they will all be built at the Lorain yards of the lake shipbuilding combination. The published figure of cost is probably somewhat exaggerated, though material costs two and one-half times what it did a year ago. Each will be fitted with all the latest details in contrivances for time and labor saving, which could scarcely be otherwise with such a progressive man as Captain Wolvin in charge. It is interesting to note that he was the first to build a freight ship of the 400-foot type, and has steadily kept his fleet ahead in size and capacity of anything on the lakes, that he was the first to introduce the water tube boiler, the quadruple engine and the mechanical stoker in a freight ship, or, as to some of these accepted contrivances, in any ship at all, for that matter. It would be hard to imagine him building a vessel not up to the very latest date. The magnificent "Pennsylvania" probably the finest type of freight ship afloat on any waters, was built after his plans and sold at completion to the Federal Steel Company, and there is no kink in new devices that showed themselves acceptable to the designer that is not to be found in her.

In view of the construction of the first 500 foot ship the question arises whether the limit of size has been reached on the lakes. But there seems less reason for the answer that it is than there was when the first 300-footer was planned. That was a more daring piece of marine architecture than the 500-foot craft of to-day. Less than ten years ago steel ships of the type then built for Ferdinand Schlesinger for ore carrying from Escanaba, and now in the Canada-Atlantic fleet from Duluth to Parry Sound, were the marvels of the trade. They were 300 feet long and carried about 2500 tons. At that time the Great Northern Railway built six steel freighters of the same general type, and they were pointed at with admiration all along the lakes and were the boast of their builders. These ships were some 25 feet deep and 40 feet wide. In 1893 the steamship "Curry" came out for the ore trade, with an extreme length of 360 feet and a wider beam by 5 feet than those before her, and her construction was set down as a foolhardy thing. The boat was characterized as too large for safe and profitable navigation and loss was predicted. But the procession continued, and three years later Mr. Rockefeller began construction of the Bessemer fleet with ships of a length of 405 feet and width of 48. Then in 1898 there were the first of the 450 foot ships, but without additional width or depth. There has scarcely been a year in the past ten when the most advanced ship of one year would not rattle around inside the hull of that of the next season. That this thing will stop short with the size now attained seems incredible. But there are certain rules and principles governing the size of ships that are fixed and impassable. The depth of the

connecting channels of the lakes is not great, the width of ships and channels at ports is unchangeable, and the height of docks under which ships must load cannot well be altered. With a certain weight of metal there must be a certain proportion of height of side of ship to length in order to make the trusses of the vessel substantial and prevent her cutting herself to pieces in the seas. In the past ten years the depth of water in the channels has been increased from 14 to 18 feet, but any further increase must be at tremendous cost. In the same time the ore roads have raised their docks from a height of deck of 35 feet to one of 59, but the practical limit of this sort of thing seems near. To-day none of the new ships can go into the harbor of Chicago, and they are limited to a few ports especially adapted to their reception. All these things make it evident that the time is fast approaching when the limit of size for lake ships will be reached.

There is no commerce in the world so economically carried on as that of the great lakes, especially of the upper lakes, and of the head of Lake Superior in very particular. By the triple and quadruple use of the steam from the boilers, furnished at pressures of from 180 to 240 pounds to the inch, by hot drafts and water tube steam generators, the consumption of coal per horse-power developed has been reduced to less than 1¼ pounds per hour, a remarkable record. Loads of 14,500 tons have been carried for 1000 miles at an average speed from Duluth to Cleveland of over 11 miles per hour, this record having just been made by the steamer "Morse" and a consort of the Bessemer fleet. These cargoes are loaded in an hour or so, and taken out of the ships in but slightly longer time, there being nowhere in the world a corresponding speed. Such short delays give the vessels greater proportion of their time for work, and thereby increase their earning capacity, and the rate at which they can carry cargoes is thus lessened. It is to these reductions in cost that the wonderful progress of the Northwest is very largely due.

All these new 500-foot craft will be out by the spring of 1900, and they are presumably for the American Steel & Wire Company, and will give that concern a capacity for moving 1,400,000 gross tons in a lake season. All will be built at Lorain.

Electricity in a Foundry.

An interesting substitution of electric for steam power has been shown to a representative of *The Iron Age* by the C. A. Treat Mfg. Company, makers of car wheels and general castings at Hannibal, Mo. The power for this plant was formerly furnished by a main engine of 80 horse-power, which is now arranged to belt to the 50 horse-power Northern Electric Company's motor in case of mishap to the Hannibal City electric plant. A 500-volt current is used and the flat contract calls for a consumption of 25 horse-power.

It has been found that from 7½ to 10 horse power are nominally required, except at heats, when up to 50 horse-power are drawn on. Since the plant was changed to electricity in January the daily consumption has been about 16 horse-power for ten hours run.

The principal motor is a 50 horse-power Northern Electric Company's machine at 550 revolutions per minute, which may be belted as a generator when required. The starting box for this motor is provided with a Cutler & Hammer overload attachment.

The car wheel grinder was formerly driven by a 25 horse-power steam engine through wire rope transmission. To do this work now a 15 horse power incased multipolar Northern electric motor at 800 revolutions per minute is employed, and as a further protection against dust the motor is confined in a tight inclosure near the grinder. It is interesting to note that but 3½ to 4 horse power are now needed to perform the work of grinding, and your correspondent was advised that not 50 cents worth of repairs have been expended since the change was made.

The foundry plant has one No. 3 and one No. 4 Whiting cupola, the blower for which is driven by a 20 horse-power Westinghouse motor at 1050 revolutions per minute.

As a spare machine one 15 horse-power Westinghouse motor with 1150 revolutions per minute is kept on hand for driving either blower or wheel grinder.

The provision to drive the 50 horse-power Northern machine as a generator has been found a wise one, as the day before our visit the city current failed and but a few minutes were required to bring the 80 horse-power engine into service in driving the motor as a generator. The switchboard is completely arranged for these special requirements and is also equipped with a Westinghouse automatic circuit breaker.

Compressed air is extensively used by the C. A. Treat Mfg. Company and it is claimed that the 6 x 60 inch air cylinder attached to the wheel crane over 20 years ago is the first of its kind.

The old wheel drop or "skull cracker" is provided with a 14 x 120 inch air cylinder, and the cupolas are served by a combined water and air hoist having a 12-

inch cylinder of 14 feet lift. Throughout the foundry and shops air hoists are plentifully provided. The economy of the new over the former power seems practically demonstrated.

Spanish American Commerce.*

BY THEODORE C. SEARCH, PRESIDENT NATIONAL ASSOCIATION OF MANUFACTURERS, PHILADELPHIA, PA.

A natural affinity seems to be drawing the peoples of North and South America into more intimate relations, commercially as well as politically. Between the extremes of the two American continents there are many shades of racial distinction, many differences in political and social institutions; but the element of Americanism is mightily manifest from Alaska to Cape Horn.

In the world at large America is generally interpreted as the United States, but if you travel the southern continent you will find a strongly marked belief that the term American applies to what exists south of Panama as well as to that which lies northward from that dividing line.

Spanish ancestry and radical differences in language, manners and customs cannot suppress the desire of the Americans of the south for closer political and commercial affiliations with the Americans of the north. There is an underlying reason for all this which is very clear. It was our successful struggle for independence that gave hope to the oppressed peoples of South America. It was the example of our Washington that gave inspiration to Bolivar, whose devotion to the cause of liberty placed five free and independent republics upon the map of South America. If you go to Caracas in Venezuela you will find that one of the most beautiful squares in the city is known as the Plaza Washington. In the midst of it stands a beautiful bronze statue of our nation's father, and Washington's Birthday is celebrated with as much enthusiasm as here in our own country.

With the influence of our independence so strong throughout their land, what wonder that the people of the south gladly welcome anything that tends to bring them closer to us of the north! We are only just beginning to realize these conditions; we are only just awakening to the possibilities of closer union with the South American countries. Only within a few years have we begun to grasp the vast commercial importance of more intimate relations with the Latin-American republics. The present era of commercial expansion, with its breaking down of trade barriers, has revealed to us many opportunities and possibilities, and now we are beginning to see and appreciate for the first time the advantages that would result from closer touch with our natural friends in the south.

Pan-Americanism.

Pan-Americanism—which may stand as a synonym for the effort to bring Americans into closer touch—virtually had its beginning in the union of American republics, which was one of the masterly achievements of the far-seeing Blaine. From that starting point of 12 years ago the movement has grown steadily and the sentiment of American unity has manifested itself in many forms.

The secret of success in foreign trade, as in business here at home, is close touch with your customer, acquaintance with him, knowledge of his methods, wants and peculiarities. If you want to do business with a man you must get close to him. After trying to do foreign business at long range for many years the manufacturers of the United States have learned that the better plan is to get close to their customers—to go where they are and also to bring them here. The success of the English merchants, who for more than a century have been the world's great traders, and of the Germans, who have lately shown themselves to be the keenest merchants of the world, is due to their acquaintance with their customers, their familiarity with every condition in the markets where they trade.

Secretary Blaine's Pan-American Congress was practically the first attempt to get into close commercial contact with the nations to the south of us, by bringing their representatives here so that they might see our country, the magnitude of our industries and the extent of our commerce. A reciprocal effort was made in 1896 by the National Association of Manufacturers by the sending of a committee of the members, representing a variety of industries, for a tour of the commercial centers of the Argentine, Uruguay and Brazil. The investigations conducted by this committee threw a great deal of light upon the future course of our trade in South America and furnished many a valuable clew to business possibilities.

Still further along the line of closer commercial relations the National Association of Manufacturers one year ago opened in the city of Caracas, the capital of the United States of Venezuela, a large warehouse for the display of articles manufactured in the United States. In that ware-

house are samples from about 100 of our manufacturers in many different lines, so that the buyer can examine at his leisure goods of the kind that he wishes to purchase.

The establishment of such a depot had the immediate effect of creating a center of American trade in that country, and in a single year more has been done to make our goods known in Venezuela through this agency than could have been accomplished in any other way.

The Pan-American Exposition.

It has remained for the business men of Buffalo to grasp the opportunity and the time by planning another great step in the movement which is bringing the two Americas nearer and nearer together. Two years hence we shall have upon the northern frontier of our country an exposition created for the specific purpose of making Americans of the north and south continents better acquainted. A more practical and far reaching undertaking could not readily be devised, and as its conception speaks volumes for the progressiveness and public spirit of Buffalo so I am sure will the successful accomplishment give to your city the honor and glory it so well deserves. Those who shall come here from the other American continent will know our country, its people and its industries as would be in no other way possible. They will learn of our broad humanity, our inborn principles of freedom and our honesty and integrity in commerce. We shall be the gainers as well as they, and the whole effect of such intercourse as your great Pan-American Exposition will permit will be in every way beneficial to every man who shall be permitted to participate therein. The value of such events cannot be measured in money any more than you can place a cash value upon a man's freedom, his education or his religion. Such undertakings are great factors in the world's progress, and when intelligently conducted they are well worth all they cost, even if they never return a dollar in cash to the subscribers or stockholders.

The Value of Closer Commercial Intimacy.

While we cannot estimate the value of each factor in the work of bringing the two Americas closer together, it is possible to figure out the worth of the object we have in view. We can tell what the gain to our industries would be if closer commercial intimacy should bring to us one-fourth, a half or all of the trade that now goes to other countries instead of coming here from the south. Roughly speaking, the nations lying south of the Rio Grande import annually something like \$450,000,000 worth of merchandise. Of this vast amount they buy from the United States in the vicinity of \$75,000,000 each year—only one-sixth of the total. And yet we buy from them many times as much as we sell them.

Commercial Opportunities.

Drawing a line at the isthmus, we find that Mexico and the republics of Central America buy from us just about the same amount as all of the great continent of South America. Mexico, our largest Latin American customer, buys nearly \$25,000,000 worth of merchandise from us annually. This is one-half of all the foreign goods that go into Mexico. This is not only the largest item, but the largest proportionate amount in our Latin American trade.

Brazil is our next best customer, with annual purchases amounting approximately to \$15,000,000, but this is only one tenth of the imports into that country. The \$135,000,000 of yearly trade in Brazil which we do not enjoy at present is certainly something of an object toward which our efforts might properly be directed.

Our commercial opportunities in the Argentine may be reckoned at about \$90,000,000 annually, as that is the value of imports from countries other than our own. What we send there amounts to only \$6,000,000 or \$7,000,000 annually.

Even the small republic of Uruguay imports about \$25,000,000 worth each year, but less than \$2,000,000 of this amount represents our share in the trade.

We might analyze the entire commerce of South and Central America and in every case the result would be the same, varying only in the extent of the deficiency in our share of the trade. It should not require extended argument to show that it is well worth vigorous effort to secure control of a larger portion of the commerce of Latin American republics than we now have.

The Question of Methods.

The question of methods by which the desired result can best be attained naturally suggests itself next for consideration, and this opens up a very broad field for discussion. I have already touched briefly upon what I consider the first and most urgent need in the extension of our foreign trade, not only in Latin America but in all the world—namely, closer contact and more intimate acquaintance with our prospective customers. We need to go among them and to bring them among us.

The quickest, surest and most satisfactory way to sell goods in South America is to send thoroughly competent salesmen there, men who know the country, the people,

* An address before the Committee on Exhibits of the Pan-American Exposition, Buffalo.

their language and customs, and of course the goods they are to sell. Such men not only bring back orders, but they obtain what is worth more than the first sales. They learn what goods are best adapted to the market, at what prices they must be sold, who are the most desirable customers, and they establish connections from which business grows and develops year after year. A right beginning in foreign trade is of the utmost importance, and this is best accomplished by the personal work of a competent traveling representative.

Results of the utmost importance can be accomplished by warehouses such as that of the National Association of Manufacturers in Caracas, Venezuela, to which I have already referred. Depots of this kind in a number of the most important foreign trade centers filled with samples of American goods would powerfully influence trade to come in our direction. I hope to see a series of such warehouses under the control and management of the National Association of Manufacturers tapping the richest trade of the world and making the best of our products known in every land.

In no way can we better convince the foreign buyer of the excellence of our goods, the extent of our industries and the integrity of our commerce than by bringing him here to see what we manufacture and where and how it is made. This is not easy to accomplish, but when we can get representative business men to come to us from abroad it is sure to mean the opening up of a new channel of trade. But we must have the merchants from abroad, the active business men who are our possible future customers. Sightseers, diplomats and students are ever welcome, but it is the merchant whom we are most anxious to see and to whom we are most eager to show the best that we have.

A National and International Benefit.

I take it that your coming Pan-American Exposition contemplates purposes such as I have outlined—to bring into closer touch the business men of the two Americas, to make each better known to the other and to show your visitors from abroad what we make that will best suit their needs. In one word, your exposition means business, larger and broader trade between the people of North and South America. Such an ambition is worthy of your great city and your broad minded business men, and whatever measure of success you may achieve will be a national benefit. This undertaking is significant of the tendency to obliterate all divisional lines upon these two continents and to make Americans of all those who dwell between Cape Horn and the Arctic Circle. There is a slowly working process of amalgamation which is surely tending toward such an end. Even from remote towns in the interior of South America comes the significant cry, "America por los Americanos"—America for the Americans.

The Welsh Tin Plate Combination.

The new Tin Plate Makers' Association for South Wales has become an accomplished fact. The association has secured the support of practically the whole trade and promises to be much stronger than previous attempts in the same direction. Among the rules are the following, setting forth the objects of the association:

1. To promote and further the interests of the members generally, and to protect and defend those interests against combinations of workmen seeking, by strikes or other actions, to impose unduly restrictive conditions upon said trades.
 2. To secure mutual support in dealing with demands made and actions taken by workmen or combinations thereof on all matters or questions affecting the joint and common interests of the members.
 3. To arrange for possible rates and wages for definite periods.
 4. To protect and support the members against loss arising from strikes or disputes with workmen or injury by acting in conformity with the decisions or recommendations of the association.
 5. To give the members all such assistance—pecuniary, legal or otherwise—as to the association shall appear applicable or desirable.
 6. To promote the formation of a Conciliation Board or other provisions for the equitable settlement of all difficulties between the members and their workmen.
- It is also provided that the association shall not apply to steel works or forges, but may affiliate or co-operate with such other associations as may from time to time be thought desirable.

There is nothing set forth that provides for the much talked of alliance between tin plate masters and workmen, except so far as is implied by the clause bearing upon conciliation boards. However, the committee practically recommends the American system of periodical settlement of wages, as shown by clause 3.

It is provided in rule 13 that at meetings of the association members shall have one vote for any number of

mills up to four, and one vote for every additional four mills or additional part of four mills. Rule 44 provides that each member of the association shall contribute to the funds thereof as follows: Within one month of the deed of association coming into force there is to be handed to the funds £10 per mill; for mills working by steam power, contributions at the rate of 10 shillings per month; and for mills working by water power, 7 shillings 6 pence per mill per calendar month. Since there are 346 mills expected to be connected with the association within a month after the deeds are signed, the association would command £3460. It is arranged in rule 47 that compensation on account of strikes or lock outs shall be at the rate of £5 per mill per week for steam and £3 15 shillings for water mills.

The Foundrymen's Association.

The regular monthly meeting of the Foundrymen's Association was held at the Manufacturers' Club, Philadelphia, on Wednesday, June 7, with a good attendance of members. The president, P. D. Wanner, occupied the chair.

The Executive Committee presented a report in which reference was made to the recent convention of the American Foundrymen's Association at Pittsburgh and the work accomplished thereat. In regard to the present condition of the foundry trade, the report stated "the foundry industry has never been so prosperous since the formation of the various foundrymen's associations in this country as it is to-day, and there has never been a better feeling in existence among foundrymen. It is our thought that the associations throughout the country have at least brought about the better feeling existing among foundrymen one to another, and while they have not to any extent made prices for castings or for labor, they have helped those who do not know how to get at the cost of castings, and thus exerted some influence toward the maintenance of prices."

Letters received from sections in the State of New York and in the Northwest were read, in which it was stated that understandings had been arrived at among the foundrymen of the districts looking toward the establishment and maintenance of prices advantageous to the foundry trade.

Wm. Hanson, Pennsylvania Iron Works Company, Philadelphia, was elected to membership in the association.

The paper of the evening was by A. B. Farquhar of the A. B. Farquhar Company, York, Pa., on "Trade, Trusts and Tariffs," which we print elsewhere.

Some discussion ensued, in which most of the points made by Mr. Farquhar were upheld. The discussion turning upon the condition of the iron trade to-day and the production and consumption of raw materials. Thos. Devlin of Thos. Devlin & Co., Philadelphia, made the following remarks: "It seems to me the conditions are entirely different to-day to what they were during the boom 20 years ago. Prices at that time were advancing owing to the extraordinary amount of speculation indulged in, a condition which I do not think exists to-day. Everybody able to buy nails, pig iron, or other staple products of iron in those days bought as heavily as he could, but I cannot see that any such buying is in evidence to-day. The demand now is a regular and legitimate demand, and consumers are buying their supplies upon the base of actual needs. In addition to that the country has a very large export trade which must enter into the question largely." There was, he said, no possible danger of imports, but under any circumstances the country would be likely to continue to export. In his own particular line of trade, he said, export business was increasing, and prices were better, therefore under such conditions he could look for no immediate reaction.

Upon adjournment it was announced that the next meeting of the association would be held on Wednesday, September 6 next.

A movement having a strong support of popular sentiment is on foot in England in favor of the projected tunnel between Ireland and England. A largely attended and influential meeting was held in London on Monday, when a petition to the Government was adopted urging the undertaking of such a work on the ground that it would not only unite England and Ireland more closely, but tend to bring the United States and the United Kingdom into more intimate relations. The proposed route is a distance of 25 miles under 85 fathoms of water and the estimated cost of the undertaking is \$60,000,000.

The large compressor of the American Air Power Company, in New York City, is nearly completed and the pipe line from the North River to the compressor is also nearing completion. It is expected that the whole plant will be in operation within a week.

Canadian News.

The New Bounty Arrangement.

TORONTO, June 9, 1899.—So far as can be learned manufacturers of iron and steel are not apprehensive that the tapering off of the bounty to zero in the next eight years will have very serious consequences for them. According to the Ottawa correspondent of the *Toronto Globe*, the journalist most in touch with the Government on all questions, the Hamilton Blast Furnace Company would prefer an arrangement which would extend the time for the dwindling away of the bounty four or five years beyond the period decided upon by Mr. Fielding. At present the Hamilton Furnace is working up to its full capacity. The stock is quoted at 185. All the red hematite used by the company comes from the United States. On that, of course, they have to pay duty, whereas if the ore were of Ontario production a bounty of \$1 a ton would be earned from the Province, and an extra bonus of \$1 a ton from the Dominion. Thus it is made manifest to the Government that any amount of bounty would not of itself avail to bring into existence an iron and steel industry of exclusively Canadian origin. Whatever may be done as to the bounty, it is clear something else is necessary. In brief, facilities must be afforded for drawing upon Canada's own hematite deposits. The best of these at present known are those of the Rainy River district, and with a view to their development and the building up of a purely Canadian iron industry, the Government has concluded to aid in the construction of the Ontario & Rainy River Railway to the degree asked. It decided a few days ago to insert in the estimates a vote of \$6400 per mile for upward of 200 miles of that line. As the Ontario Government granted \$4000 per mile last session, and as the Manitoba Government is to be asked to do something, not much remains to be done to find the capital for the road. The opening of this road, it is expected, will mark a new era in Ontario iron and steel making. As was stated in a former letter, a big company have already been formed to run a line of steamships from Port Arctun to lower lake ports, to engage in the ore carrying and grain carrying trade.

Returning to the views expressed by the Ottawa correspondent of the chief ministerial organ, we find a hint of compensation in still another form for the extinguishment of the bounties. The correspondent in question says that it is the hope of the iron and steel manufacturers both in Nova Scotia and in Ontario that the Minister of Finance will shortly be able to recommend a return to the old duty of \$4 per ton on pig iron. A low duty, they submit, makes it possible for the Americans to make a slaughter market of Canada. The total pig iron bounty paid since the year 1883, when the bounty system was inaugurated, amounts to \$936,875.97.

Iron Prospects of Pictou, N. S.

H. B. Mutch and Samuel K. Paige of Boston were in Pictou, N. S., for some days last week viewing the locality with an eye to its advantages as a place for the production of iron. Their object, if the conditions are favorable, is to erect smelting works at some point on the North Shore, either in Cumberland or Pictou County. Pictou presents advantages that may commend themselves to the projectors, as it is convenient for shipping and receiving by water, and is in the vicinity of iron and coal mines. Several spots suitable for sites were examined in the suburbs by Mr. Mutch and Mr. Paige in company with the Mayor and another member of the Municipal Council of Pictou. Wallace, Pujwash and other points were visited.

Hamilton Steel & Iron Company.

As a result of the amalgamation of the Hamilton Blast Furnace Company and the Ontario Rolling Mills Company a new company are formed, who, besides carrying on both the smelting business and the rolling mills business carried on by the two companies separately, will go into the business of manufacturing steel. A charter for incorporating the amalgamated concerns under the name of the Hamilton Steel & Iron Company has been applied for. The capital stock is to be \$2,000,000, divided into 20,000 shares of \$100 each. The following are the applicants: A. T. Wood, M.P., wholesale hardware merchant; A. E. Carpenter, manufacturer; Charles S. Wilcox, manufacturer; John Milne, manufacturer; Wm. Southam, publisher; Aaron M. Wilcox, manufacturer, and Chas. E. Doolittle, manufacturer, all of Hamilton. Power is asked to manufacture steel rails, as well as pig iron, puddled bar, bar iron, Bessemer and other kinds of steel, &c.

Canadian Copper.

Several fine specimens of copper ore have been received at the Bureau of Mines here, all from Michipicoten Island, which is now practically owned by a Boston syndicate. At all events, the syndicate in question has the option of purchasing a large part of the property owned by Joseph Cozens, a public land surveyor, and has added to that several other parcels until it has the whole known deposits of

the island at its disposal. At the beginning of the winter the syndicate started work with a gang of 60 or 70 men. In the spring the force was increased to 120, and nearly every boat that touches the island lands more hands. The former workings of the Cozens property were carried on upon a bed of amygdaloid, which contained native copper. The present workings are carried on in a bed of conglomerate, which also contains native copper, and has been traced on the surface by outcroppings for a length of 2 or 3 miles. A short time ago the shaft being sunk had reached a depth of about 70 feet, and the cross cutting showed a width of 80 feet of ore. Development work at present is being pushed rapidly.

The copper mines of British Columbia, particularly those of the coast, are attracting considerable attention.

Two Refining Companies.

Application has been made for letters patent incorporating the Hoepfner Refining Company, with head offices at Hamilton. The capital stock is fixed at \$600,000, and the objects are the mining and refining of zinc, lead, silver, nickel and copper ores. The incorporators are Carl Hoepfner, Ph.D., Frankfort on the Main; A. T. Wood, M.P., Hamilton; David MacLaren, Ottawa; N. Dymont, Barrie; Hon. J. M. Gibson, John Moodie and John Patterson, Hamilton; Henry Necarsulmer and Albert F. Fuerst, New York. Carl Hoepfner is the inventor of a process for refining ores which is said to be considerably cheaper and better than any other in use, and the proposed company are to control the Canadian patents. Electricity is to be supplied by the Cataract Power Company, who are already furnishing electricity for lighting and power purposes in Hamilton.

Application has been made for the incorporation of the Canadian Electro-Chemical Company, with a capital stock of \$1,000,000. The chief place of business is to be at Sault Ste. Marie, Ont. The objects are to develop and mine gold, silver, copper, nickel, iron and other mineral deposits, and to smelt, reduce and refine all kinds of minerals. The applicants for incorporation are F. H. Clerpre, Philadelphia; E. V. Clerpre, New York; B. J. Clerpre, Sault Ste. Marie, Ont.; H. C. Hamilton and Nelson Simpson of the same town.

Trade Items.

A resolution was passed at the last meeting of the Montreal Metal and Hardware Manufacturers' Association expressing regret that no insolvency legislation is to be introduced in the present session of Parliament, and calling upon the Montreal Board of Trade to join in a similar expression of dissatisfaction with the Government. An even stronger resolution was passed by the Council of the Board of Trade.

Joseph Selwood of the Minnesota Iron Company left Port Arctun on the 6th inst. for home, after spending some days lookings over the Atikakan iron range.

The Baldwin Iron Works Company are in communication with the Town Council of Hull, proposing to build a machine shop and foundry in that town. C. A. C. J.

An Indiana Anti-Trust Decision.

The Indiana Supreme Court handed down last week a decision in the case of the State against the Portland Natural Gas & Oil Company, which holds that a public corporation which enters into a combination with other corporations to check competition and thereby increase the price at which an article is sold to the inhabitants of the State become liable to a forfeiture of their corporate franchise. Judge Jordan of the Supreme Court of Indiana, who wrote the decision, says in part:

When the State seeks to destroy the life of an incorporated body it is expected to show some grave misconduct, some act at least by which it has offended the law of its creation, or something material which tends to produce injury to the public and not merely that which affects only private interests for which other adequate remedies are provided.

Where, however, the facts disclose that a corporation has failed in the discharge of its corporate duties by uniting with others in carrying out an agreement the performance of which is detrimental or injurious to the public it thereby may be said to offend against the law of its creation and consequently to forfeit its rights to its franchises. It is an old and familiar maxim that competition is the life of trade, and whatever act destroys competition or even relaxes it upon the part of those who sustain relations to the public is regarded by the law as injurious to public interests and is, therefore, deemed to be unlawful on the grounds of public policy.

The authorities affirm, as a general rule, that if the act complained of, by its results, will restrict or stifle competition the law will regard such an act as incompatible with public policy without any proof of evil intent on the part of the actor or actual injury to the public.

German Rolling Mill Engines.*—II.

BY C. KIESSELBACH, RATH, NEAR DUESSELDORF, GERMANY.

After this first effort to notably improve the reversing engine had succeeded only to a moderate extent, the firm of Ehrhardt & Sehmer went at the solution of the problem in another manner. Starting from the conviction that placing the cranks at an angle of 90 degrees called for cutting off at a late period in order to safely start under load, they introduced the triple engine, placing the cranks at an angle of 120 degrees. It is true that double engines in rolling long pieces permit of cutting off sooner. This is shown by the Teplitz cards in Fig. 1. But the attention of the engineer is required to such an extraordinary extent that it is not safe to count upon cards so good in continuous practical rolling. As a rule the engineer will leave the cut off during the whole pass at the point needed for starting. Even when the engineer finally does learn to regulate not alone with the aid of the throttle, but also with the aid of the cut off, the triple engine will permit of an earlier cut off than the double engine. It is true that the triple engine has no advantages in the way of stopping promptly, because in this type, too, the quantity of steam between the steam valve and the piston is lost, nor can much be expected in the way of improvement through an earlier closing of the link. So far as I know even in the first triple engine the plan has been taken into consideration to have one high pressure and two equally large low pressure cylinders. That trial was, however, not made, because when compounding the capacity of the triple engine was too small. Aside from the fact that the compound triple reversing

point is to drive three high rolls without fly wheels, in which many passes are made simultaneously, so that the rolls rarely or never run empty. In this case it is true the advantage of rapid rolling can only be utilized to a limited extent. Still I believe that the tendency will be more and more toward this method of working as soon as it is established that rather less than more steam is consumed than in running tandem fly wheel engines. It must be noted that in working in this way the old tandem engine may give very good results, as well as the compound triple engine. This is clear when it is taken into consideration that the weakness of both these systems lies in their action during the period of stoppage or running empty. Even with careful roll designing and the most cautious driving the fly wheel entails serious dangers, which disappear or are lessened when the engine may be reversed at any time and when furthermore the whole apparatus is stalled as soon as the resistance exceeds a certain measure.

Superheating of steam has been repeatedly discussed recently, and distinction is made between moderate superheating, in which the steam is heated from 80 to 100 Celsius up to 240 to 270 degrees above the saturation point, and high superheating, in which a temperature up to 350 degrees is attained. In the former case, with ordinary piston or valve engines, no serious difficulties are to be overcome. It suffices to keep the pistons light in order to reduce pressures, and to pack with suitable packing asbestos with metallic fibers or coppered asbestos paper, alternating with asbestos disks.

The matter becomes more difficult with high superheating, especially when the engine must at times work with a late cut off. In order to keep the temperature of the highly superheated steam from the piston rod pack-



Fig. 1.—Cards from a Compound-Reversing Engine at Teplitz, Built by Markische M. B. A., Wetter a. d. Ruhr.

engine has the faults of the old English tandem engine the consideration comes up that the capacity of such an engine is out of proportion to its cost. Thus a compound engine of 1300 mm. diameter and 1300 mm. stroke has only the same capacity as a tandem compound with 900 to 1350 mm. diameter, and the same stroke, and yet the triple engine must be built stronger than the tandem engine, which requires only two systems. It is evident that the plan may readily be carried out to design the compound triple engine in such a way that it may work at any time as an ordinary triple engine when there is a heavy load, or whenever the steam pressure is not great. But in this way the advantage is sacrificed from the very moment when it is most urgently needed on account of the great steam consumption. If it be considered further that whenever the load is started the receiver must be filled in a particular manner, and that even under slight fluctuations of load the two low pressure cylinders cannot possibly do the same work, then little importance will be attached to this system for ordinary reversing rolling mill work. The conditions are a little more favorable in the case of three high rolling without fly wheel.

A special interest attaches to the 750-mm. three-high mill at Burbach, driven by a reversing triple engine without fly wheel, which under ordinary conditions turns only in one direction. At Burbach there is only one piece in the rolls. Between two passes the engine runs empty with throttled steam and highly diminished velocity. The piece is seized slowly without shock, then the engineer puts on more steam and draws through the piece which has a maximum length. The method of working the engine is nearly the same as it is with the reversing engine, because it does not make any serious difference whether the engine is completely at rest between two passes or runs empty under close throttling. It is true that the quantity between the steam valve and the piston is less at every pass, and that the temperatures in the cylinders, &c., are reduced very near to the temperature of the exhaust steam. It is very different, however, when the

ing as much as possible the packing box is reversed so that the box itself is drawn up. Jacketing is not used, in order to avoid too highly heated cylinder walls between the cylinders and the foundation frame, as few points of metallic contact are permitted, and between them a non-conducting material is interposed. Fig. 2 shows the cards of a superheated steam engine. These precautions do not suffice when late cut offs are used. The Aschersleben Works state that they have observed through careful trials that the temperature of the cylinder walls increases considerably when late cut offs are employed. When cutting off at 15 to 20 per cent., it is possible to work with 330 to 350 degrees without any trouble, but that there is danger of destroying the cylinders and piston rod when the cut off is later on account of greater load. For this reason the works in question make the degree of superheating dependent upon the governor in this way, that when the cut off is late the highly superheated steam is partly used for heating the receiver steam before it enters the high pressure cylinder. The governor must, therefore, besides taking care of the valve system operate a system of flaps which draw the highly heated steam into the heating pipe system. In the case of single cylinder engines the governor admits boiler steam for the purpose of regulating the temperature. These arrangements are neat, but they involve further complications. If these are to be avoided the design may be made so that the cut off in the high pressure cylinder takes place within a moderate range. One method is to design the ratio between the cylinders in a corresponding manner, which may be done without seriously affecting the economy. Besides, it is good practice in this case not to allow the piston to run upon the cylinder wall, and not to put the piston rings under unnecessarily heavy pressure. Other specialists in highly superheated steam engines assure me that their experience does not by any means justify the fears expressed. It is clear, however, that the use of highly superheated steam even in ordinary engine plants is not so very simple. In the rolling mill engines the conditions are much more unfavorable to superheating, because the engines are generally scattered and because the consumption of steam is very irregular.

* Abstract of a paper read before the Verein Deutscher Eisen Huettenleute.

A superheater, even when its dimensions are great, contains only a little steam, and cannot store the heat in the light body of its tubes and in the masonry around them. Therefore the engine suffers from every marked change in the load. It is desirable, therefore, to provide for some method of having the temperature of the working steam subject to the influence of the engineer either by changing the firing, diverting the heating gases, by mixing the working steam with saturated steam or by deflecting the superheated steam partly back into the general steam line. Attempts of this character have been made, one of them being that of the firm of B. Meyer of Gleiwitz. In spite of this there is the danger that the tubes lying close to the flame burn through, while the rolling mill engine is idle. In one particular case a checker

mill practice. It is highly probable that usually pretty important economies are connected with it. Higher degrees of superheating, according to the experiments made with highly superheated steam engines, promise even greater economy, but the difficulties increase at the same time, and it remains to be seen to what extent it is possible to go under normal conditions in a rolling mill without endangering the safety of working.

It would carry me altogether too far to speak of the development of boiler design and its connection with compounding and superheating. Nor is it necessary to enter into the question of condensing plant, although this has assumed greater importance in the more recent development of the rolling mill engine. It is only necessary to state that success has followed the efforts to remove the

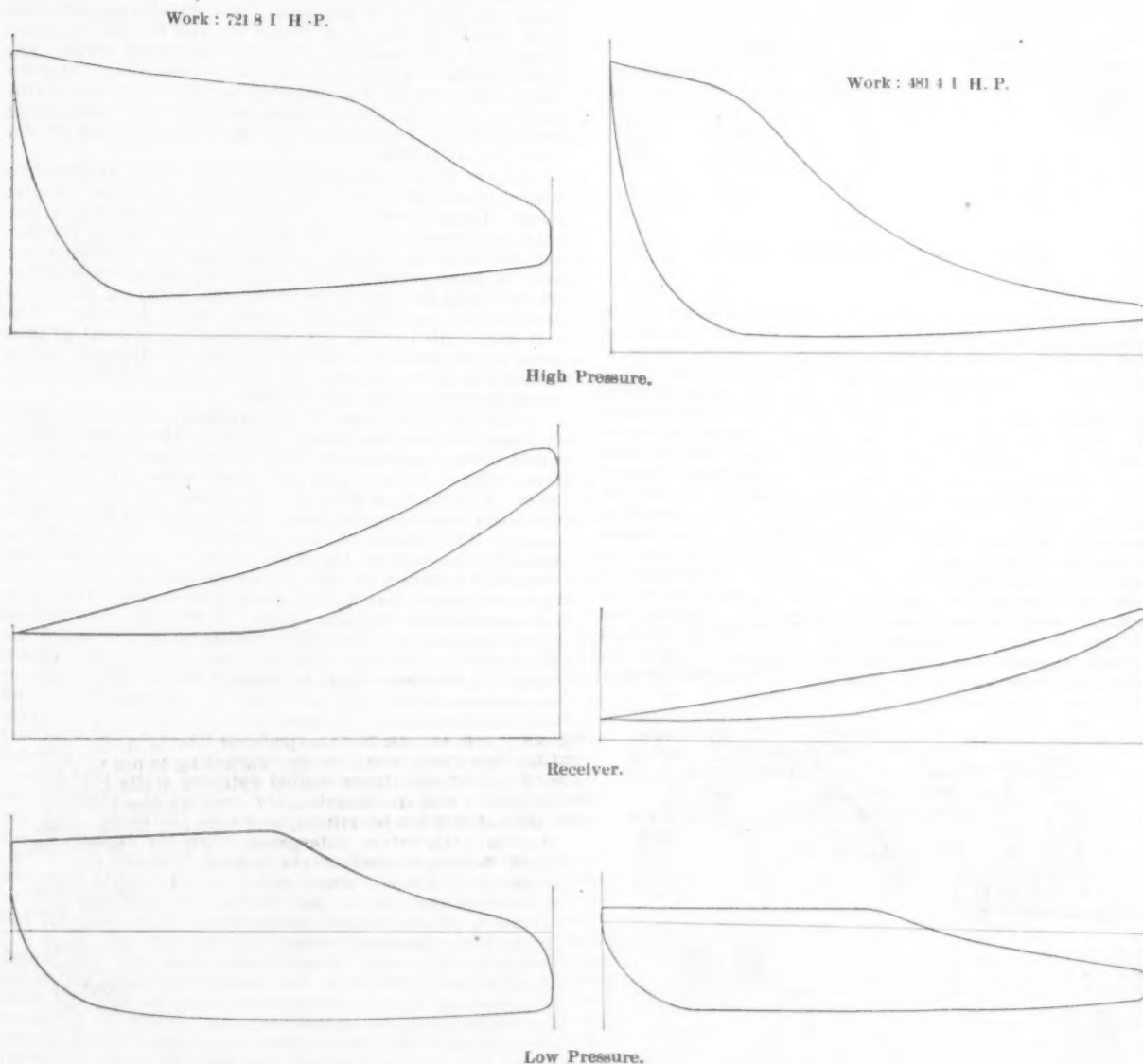


Fig. 2.—Cards of a Tandem Engine, Superheated Steam, with 400 and 950 mm. Cylinders, 1000 mm. Stroke, 80 Revolutions, Built by Aschersleben Works, Aschersleben.

work of fire brick material was interposed between the fire and the lower tubes as a protection. As a general rule it will be necessary in view of the large extent of our iron works to locate special heaters in the vicinity of the engines, even in those cases where there are superheaters at the boilers. Since a relatively small consumption of heat is necessary to produce superheating, therefore a correspondingly moderate cooling results in causing the loss of superheating in the pipes.

It is very difficult to obtain actual figures as to economies reached in rolling mill practice. The calculations and tests, which were made at Rothe Erde, have shown an economy of 12 to 13 per cent. for superheating to about 80 degrees Celsius, determined at the engine, corresponding to 100 to 110 degrees at the directly fired superheater. At another works cylinders and valves were renewed at the time when the superheater was put in so that it was not possible to determine to which to give the credit for results obtained. Experience thus far has certainly taught that a moderate superheating up to 230 to 250 degrees may be practically carried through in rolling

oil from the exhaust steam before its entrance into the condensing plant.

Having discussed the general considerations which have influenced the recent development of the rolling mill engine, I desire now to take up some of the most important engine details. So far as the designing of reciprocating parts is concerned, special reference must be made to the high speed and the pressures connected with it. The following example may serve to illustrate how important this is: In a reversing engine of 1300 mm. stroke, capable of making 160 revolutions per minute, the reciprocating parts may have a weight of 4000 kg. Then every kilogram which has reciprocating motion has a resistance of 23 kg. to its movement. The result naturally is that the reciprocating masses of such an engine must be as light as possible, consistent with great strength. This is true, not alone for reversing engines, but also for all high speed fly wheel engines, because as a rule the shocks and dangers of racing increase with the mass.

Many piston designs suitable for ordinary mill engines

have not proved of service in rolling mill engines. The pistons loosen on the rods, the springs are broken and the cylinder walls are destroyed. In many cases the piston rings are destroyed, because there is a small amount of play in the direction of the movement between the ring and the body of the piston. This results in blows on the part of the ring against the body of the piston. Their intensity grows with the mass and with the frictional resistance of the ring, and finally with the amount of play. The frictional resistance is best lessened by making the rings as narrow as possible, and not putting them under high tension. They may at the same time be pretty thick because that adds to their bearing. It is well also to make the material for pistons and rings not too soft. The piston, Fig. 3, has been designed from this point of view.

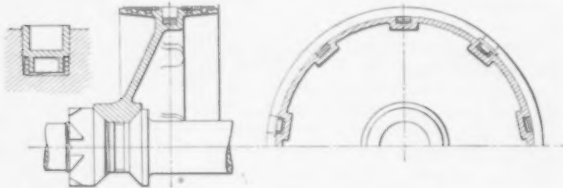


Fig. 3.—Piston of Rolling Mill Engine.

The narrow and thick piston ring is turned down to the diameter of the cylinder, is then cut two to four times, and is then provided with a so-called marine block at every cut. Another piston design is that shown in Fig. 4. Two rings are placed closely side by side, springs being placed between the two so that there is no play between the rings and the body of the pistons. Many designers prefer very narrow self-spanning rings, which have great advantages, because they are exceedingly simple. In all cases the piston ring should not extend beyond the running surface of the cylinder, because it is otherwise destroyed by water blows, the compression of the steam, or shocks of fresh steam. It must be observed that the piston as completed must have a play in the cylinder of 1-600 to 1-800 of its diameter. The destruction of the cylinder walls is sometimes due to the fact that the piston has too small a bearing in the cylinder. In the case of large engines it is generally not sufficient to guide the piston rod front and back. The rod bends under the load

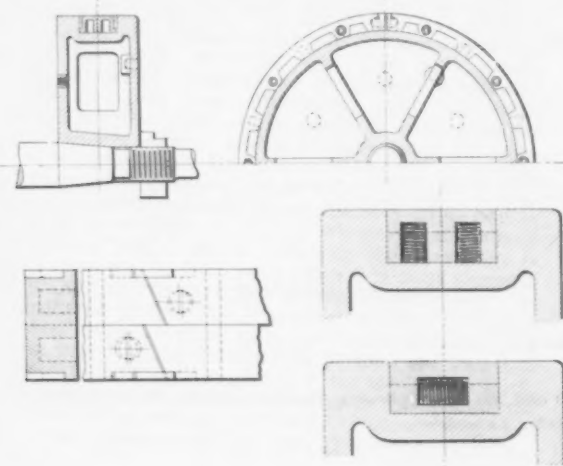


Fig. 4.—Piston Designed by Gebr. Klein.

and the piston begins to chafe. In order to have this done without ill effects, the pressures between piston and cylinder walls must be very small. It is advantageous to keep this down to $\frac{1}{2}$ to 1 kg. per square centimeter, although it is true that larger pressures may give good results. These reasons make it desirable to make the piston as light as possible.

The plan has been followed sometimes of boring out the piston rod from end to end in order to save weight without seriously diminishing its resistance to bending and buckling. Experience has taught, however, that such piston rods have a disagreeable tendency to become crooked. I believe that this is the result of the disturbance in transmitting heat over the section of the piston rod. It is brought about by partial heating of the rod on one side, which is naturally the less dangerous the easier the equalization of temperature over the whole

section. In order to prevent heating on one side the stuffing boxes ought to have a certain mobility in the vertical direction.

The Armor Plate Matter.

WASHINGTON, June 13, 1899.—The Secretary of the Navy has adopted the suggestion made in the columns of *The Iron Age* last week by Chief Constructor Hichborn that a certain portion at least of the armor required for the four monitors and the three battle ships authorized by the act of 1898 shall be purchased of the contractors under the specifications governing Harveyized armor, in order to avoid the indefinite delay which must result if action is postponed until Congress meets. After careful consideration of the points involved, Secretary Long has decided to purchase Harveyized armor for the four monitors, Nos. 7, 8, 9 and 10, and for the diagonal triangular and casemate plates of the battle ships. The considerations which have moved the Secretary and the advantages which it is expected to secure by this settlement of the controversy were set forth by a prominent official of the Department to the correspondent of *The Iron Age*, as follows:

"There is no vessel of the navy on which Harveyized armor could be used with less risk than the monitor class. These vessels have little or no freeboard in a seaway, no superstructure to speak of and only a big turret that may be said never to present a point blank target. It is very doubtful if under any service test differences could be shown between the resisting power of Harveyized or Kruppized armor on a monitor. The schedules call for 533 tons each, making a total of 2132 tons, which under the decision of the Department can be ordered at once and paid for at the rate of \$400 per ton, as authorized by the act of 1898.

"The next question the Department was called upon to consider was the extent to which Harveyized armor could advantageously be used in the construction of the battle ship 'Maine' and class, authorized by the act of 1898. The limit of price for the armor of these vessels was \$400, which would enable us to buy only Harveyized armor. The opinion of the majority of the experts of the Department was to the effect that a reasonable delay would be justified, in view of the importance of securing the best armor that is now being put on the battle ships constructed for foreign navies. A careful examination of the designs for these three battle ships convinced the Department officials, however, that there were certain inside plates that would be needed at an early stage of construction which are protected by external plates, and which might safely be made by the ordinary face hardening process. In fact, a good quality of nickel steel has sometimes been used for these plates, which are divided into two classes, the so-called diagonal triangular armor, and the casemate armor. The triangular plates in the 'Maine' and class are 9 inches in thickness, and are built into the frame of the ship inside the 12-inch armor plate. They are the first plates to be required in the construction of a battle ship and our latest reports from the builders of the 'Maine' and class show that they will be needed in about 60 days. Immediately after they are put in place the casemate armor will be required. This is 7 inches thick in the 'Maine' and class, and will weigh about 90 tons to the ship. Having provided these plates the construction of these three battle ships can proceed without interruption for a full year, and under the terms of our contracts with the builders no damage would accrue to the United States should the delay be even somewhat longer. The Department may eventually decide to add the conning towers and tubes of Harveyized plates, as they will first be required after the casemate armor, and will amount to 53 tons for each ship."

It will be seen that the decision of the Department means that a little less than 2400 tons of armor made by the ordinary face hardening process will be used in the monitors and battle ships, an amount just about 10 per cent. of the total quantity for which the Department recently advertised. The use of Harveyized armor to this small extent, however, will relieve all the embarrassment occasioned by the armor plate manufacturers, and will enable the Department to wait without anxiety until Congress settles the problem which is raised by establishing a minimum limit of price.

W. L. C.

The United States Court of Appeals, sitting in Milwaukee, Wis., decided on the 7th inst. that the alien labor law applies solely to common laborers, exempting clerks and all kinds of skilled artisans.

The Suez Canal report for 1898, just issued, shows that the total receipts of the canal last year amounted to \$17,580,000, against \$15,120,000 in 1897, showing an increase of \$2,460,000. The net profit for the year 1898 amounted to \$9,758,000.

Best Books for an Iron and Steel Works Chemist.—I.

BY ALBERT LADD COLBY, SOUTH BETHLEHEM, PA

There ought to be a good long shelf of books in the office or balance room of every iron and steel works' laboratory, for they are as essential to its proper equipment as the apparatus and chemicals. If granted the opportunity the chemist of an iron or steel works can give practical aid in so many lines that his employer will find it to his direct advantage to encourage his chemist by placing the best books on the subject at his disposal, for in these days of specialties no conscientious chemist can claim to be independent of books. The steel chemist has been referred to as one "to whom often very little is given and of whom much is required." Where this is true the writer thinks it is largely the fault of the chemist himself, for if he properly represents to his employer his need of books which he cannot afford to buy they will in the majority of cases be purchased for him.

The object of this bibliography is to call the attention of chemists to the best English and American books in the various branches of his analytical work and to warn him against the poor ones. The writer based the recommendations on a personal examination of all of the books printed in English on analytical chemistry and allied subjects. 112 in number, on a long experience in the use of many of them and on an intimate knowledge of the many ways in which a chemist can aid his employer in the manufacture of iron and steel. The hope is expressed that this bibliography may include some books which have never happened to come to the notice of the reader, and that it may also be found convenient to a chemist suddenly called upon to take up a new branch of analytical work with which he is not very familiar. It has also been compiled in the hope that the public libraries in steel works centers or the local branches of scientific societies may be led to add to their libraries the books recommended.

This review of books will not appeal to those engaged in analytical work who are entirely satisfied with the few rapid methods by which they turn out the certain number of determinations required by their employers each day, and to which class of workers J. O. Arnold refers in the following quotation from the preface of "Steel Works Analysis": "The author cannot too strongly urge students to remember the fact that a steel chemist and an analytical machine who turns out so many estimations per day are two very different personalities. Analysts deficient in a thorough knowledge of elementary chemistry, physics and mathematics and the principles of qualitative analysis can claim to rank only with skilled artisans; in chemical analysis the head and the hands should always work together."

A college student just beginning professional work cannot make a more serious mistake than to assume that his familiarity with the book on quantitative analysis recommended by his professor makes the study of other books on the same subject unnecessary. The most successful professional chemists are those willing to still class themselves as students, and it is safe to say that in every one of the books recommended in this article at least one good new idea may be found, which if applied by the chemist in his laboratory work will soon save his employer many times the cost of the book.

In quoting the titles of the books the date of the last edition, the size of the book and number of pages have been given as well as the price and name and address of the publisher. The most important books recommended are marked with an * and form a library of 26 volumes which every large steel works can well afford to give to their laboratory.**

Only books in English on analytical chemistry and allied subjects were selected for review. Metallurgies, dictionaries of chemistry and chemical technologies were not included. The books are classified and discussed under the following heads:

I. Books devoted entirely to quantitative analysis of iron and steel and allied subjects.....	8
II. Books on quantitative analysis in general.....	51
III. Volumetric analysis.....	7
IV. Electro-chemical analysis.....	8
V. Gasometry.....	8
VI. Fuel analysis and valuation.....	4
VII. Physico-chemical methods.....	4
VIII. Microscopical analysis of iron and steel.....	0
IX. Laboratory reagents and chemical solubilities.....	4
X. Handbooks giving tables for calculating analyses and other data.....	15
XI. Blank books for recording analyses.....	3
Total number of books.....	112
XII. Best journals for an iron and steel works chemist.....	
XIII. Brief notice of the analytical methods given in metallurgies.....	

** The David Williams Company, 232 William street, New York, will send these 26 books, prepaid, to any address in the United States for \$78.

I.—Books Devoted Entirely to Quantitative Analysis of Iron, Steel and Allied Subjects.

In the library of every steel works chemist there should be four of the eight books devoted to the quantitative analysis of iron, steel, &c., full titles of which are given below. Blair's work, the standard in this country, claims to "bring within the compass of a single volume all the methods of real value to the iron analyst." Even in the third edition, to which much has been added, this object has not been entirely accomplished, but the collection of methods is an admirable one. Arnold's book, equally as good as Blair's and in some respects better, is not as yet as familiar to the American chemist. Arnold gives only the methods that he has found satisfactory during his long practical experience as chief chemist of the Sheffield Steel & Iron Works, and now, as professor of metallurgy at Sheffield Scientific School, he states in the preface that the work was written "specially for assistants in steel works laboratories and students taking up the analytical chemistry of iron and steel with a view to becoming steel works chemists." It fully meets its object. Lord's "Notes on Metallurgical Analysis" includes a number of good rapid methods in use in steel works laboratories. The fourth book necessary is the reprint, from the "Transactions of the Engineering Society of Western Pennsylvania," of the papers by steel works chemists in the region about Pittsburgh. Many of the methods are described in mere outline with references to Blair's, Lord's or other work for details, when in reality the chemist probably uses some slight modification which, if described, would have added value to his paper. For in many cases a long daily experience with a method results in some slight changes in the scheme which are of great practical value, especially in routine work. The four other works mentioned in the following list need not be purchased.

* *Arnold, J. O.*—Steel Works Analysis. Contents: The steel works laboratory and appliances. Section I. Analysis of metals (wrought iron, steel, pig iron, ferrochrome, &c.); II. Ores; III. Refractory materials; IV. Fuels; V. Slags, boiler water, &c. First edition, with 22 illustrations and diagrams. London and New York. Whittaker & Co., 1895. Small 8vo. X + 350 pp. \$3.

Bayley, Thomas.—The Assay and Analysis of Iron and Steel, Iron Ores and Fuel. Reprinted from the *Mechanical World* with additions. First edition, with 17 wood engravings. London and New York. E. & F. N. Spon, 1884. 12mo. XI + 91 pp. \$1.40.

* *Blair, Andrew Alexander.*—The Chemical Analysis of Iron. A complete account of all the best known methods for the analysis of iron, steel, pig iron, iron ore, limestone, slag, clay, sand, coal, coke, and furnace and producer gases. Third edition, illustrated. Philadelphia. J. B. Lippincott Company, 1896. 8vo, 322 pp. \$4.

Koninck, L. L. De, and Dietz, E. A Practical Manual of Chemical Analysis and Assaying, as applied to the manufacture of Iron from its Ores, and to Cast Iron, Wrought Iron and Steel, as found in Commerce. Edited with notes by Robert Mallet. First edition, illustrated. London. Chapman & Hall, 1872. Post 8vo, XVIII + 210 pp. \$2.50. American edition, edited with notes and an appendix on iron ores by A. A. Fesquet. Philadelphia. H. C. Baird, 1873. 12mo. \$2.50.

* *Lord, Nath. W.*—Notes on Metallurgical Analysis, arranged for Students in the Metallurgical Laboratory of the Ohio State University. Giving methods of sampling; determinations of iron, phosphorus, silicon, manganese, sulphur, carbon, titanium; analysis of coal and coke, gas, slag and fire clays; determinations of zinc and copper in their ores; examination of water for boiler supply. First edition. Columbus, Ohio, and Easton. Chemical Publishing Company, 1893. 8vo, 102 pp. \$1.25.

* *Methods of Iron and Steel Analysis.*—Methods for the analysis of ores, pig iron and steel in use at the laboratories of iron and steel works in the region about Pittsburgh, Pa., together with an appendix containing various special methods of analysis of ores and furnace products. Contributed by the chemists in charge, and edited by a committee of the chemical section Engineers' Society of Western Pennsylvania. Easton. Chemical Publishing Company, 1898. 8vo, V + 133 pp. \$1.

Rammelsberg, C. F.—Guide to a Course of Quantitative Chemical Analysis, especially of Minerals and Furnace Products, illustrated by Examples. Translated by J. Towler. New York. D. Van Nostrand, 1872. 8vo, VIII + 232 pp. \$2.25.

Trollius, Magnus.—Notes on the Chemistry of Iron. Third edition, illustrated, revised and enlarged. New York. John Wiley & Sons, 1886. 8vo, IX + 143 pp. \$2.

II.—Books on Quantitative Analysis in General.

The book market is overstocked with text books and manuals on quantitative analysis. It is difficult or impossible from the short titles, flattering notices and meager descriptions usually given in publishers' catalogues to judge whether the book is rudimentary or not, or to ascertain the date of its publication. It is also impossible to

tell without examining the book whether much space is devoted to schemes for the analysis of iron, steel and allied subjects. The writer has therefore carefully examined the 51 books treating of quantitative analysis in general, and which for the purpose of this review may be classified as follows:

a. General treatises on quantitative analysis.....	4
b. General manuals of technical analysis.....	6
c. Advanced text books on quantitative analysis.....	13
d. Books on the theory of analytical chemistry.....	3
e. Rudimentary text books.....	25
Total.....	51

a. General Treatises on Quantitative Analysis.—As "good wine needs no bush," Fresenius' "Quantitative Analysis" (now in its tenth American edition) can without comment be placed at the head of the list as the best for general reference purposes. The last American edition is rendered more valuable by the translator's appendix. This work should be included among the best books of every analytical chemist. It supplants the English translation of H. Rose's "Treatise," the standard of years ago, and also renders unnecessary the purchase of Storer's "Cyclopaedia of Quantitative Analysis." The last edition of Crookes' "Select Methods" is also an indispensable book of general reference, especially to chemists liable to be called upon for the estimation of any of the rarer elements. The titles of these four works are as follows:

***Crookes, William.**—Select Methods in Chemical Analysis (chiefly inorganic). Third edition, rewritten and enlarged, with 67 illustrations. London and New York. Longmans, Green & Co., 1894. 8vo, XXII + 718 pp. \$8.

***Fresenius, C. R.**—A System of Instruction in Quantitative Chemical Analysis. Edited by O. D. Allen and Saml. W. Johnson. Tenth edition, the new notation and nomenclature being employed throughout. New York. John Wiley & Sons, 1897. 8vo, 900 pp. \$6.

Rose, Heinrich.—A Practical Treatise of Chemical Analysis, including tables for calculations in analysis. Translated from the French and from the fourth German edition, with notes and additions by A. Normandy. London. Wm. Tegg & Co., 1849. Two volumes, 8vo. \$4.

Storer, Frank H.—Cyclopaedia of Quantitative Chemical Analysis. Parts I. and II. Boston. John Allyn, 1870-73. 8vo. \$3.30.

b. General Manuals of Technical Analysis.—Stillman's "Engineering Chemistry" and Phillips' "Engineering Chemistry" are the choice of the six general manuals of technical analysis given below. They entirely supplant their forerunners, Normandy's "Commercial Hand Book," Noad's "Manual" and Bolley's "Manual." The translation of Ulzer and Fraenkel's work just published contains but very little on iron and steel and nothing not better treated in the first two books mentioned. If a choice of one must be made Stillman's work should be selected.

Bolley, P. A., and Paul, Benj. H.—Manual of Technical Analysis: A Guide for the Testing and Valuation of the Various Natural and Artificial Substances Employed in the Arts and in Domestic Economy. London. Henry G. Bohn, 1857. Small 8vo, illustrated. XII + 426 pp. \$1.25. [A later German edition was issued in two parts in 1888 and 1889. 8vo, 1115 pp. \$8.70.]

Noad, Henry M.—A Manual of Chemical Analysis, Qualitative and Quantitative. For the use of students. Fourth edition, illustrated. London. Lovell, Reeve & Co., 1871. 8vo. X + 663 pp. \$4.25.

Normandy, A.—The Commercial Hand-Book of Chemical Analysis: or, Practical Instructions for the Determination of the Intrinsic or Commercial Value of Substances Used in Manufactures, in Trades and in the Arts. New edition, enlarged and to a great extent rewritten by Henry M. Noad. Illustrated. London. Lockwood & Co., 1875. Cr. 8vo, XVI + 480 pp. \$5.

***Phillips, H. Joshua.**—Engineering Chemistry. A practical treatise for the use of analytical chemists, engineers, iron masters, iron founders, students and others, comprising methods of analysis and valuation of the principal materials used in engineering work, with numerous analyses, examples and suggestions. Second edition, revised and enlarged. Illustrated. London. Crosby Lockwood & Son, 1894. 8vo, XII + 388 pp. \$4.

***Stillman, Thos. B.**—Engineering Chemistry. A manual of quantitative chemical analysis for the use of students, chemists and engineers. Easton. Chemical Publishing Company, 1897. 8vo, illustrated. XXIV + 523 pp. \$4.50.

Ulzer, F., and Fraenkel, A.—Introduction to Chemical Technical Analysis. Translated by H. Fleck. Philadelphia. P. Blakiston's Son & Co., 1898. 12mo, illustrated. VII + 188 pp. \$1.25.

c. Advanced Text Books on Quantitative Analysis.—Of the 13 books properly classified under this head the steel chemist should have access to at least four—Cairn's, Cheever-Smith's, Talbot's and Thorpe's. Some of these four books were written for the college student, and some of the methods given for the separation and estimation of

the elements are by no means new to a steel works chemist; but the details of manipulation necessary to success are so clearly and carefully described that the books cannot but prove of great practical value to a professional chemist desiring to review the latest precautions for accurate work. The titles of the 13 books are as follows:

Bolton, H. Carrington.—The Student's Guide in Quantitative Analysis. Third edition, with additions and corrections. Illustrated. New York. John Wiley & Sons, 1889. 8vo, XII + 143 pp. \$1.50.

***Cairns, Frederick A.**—A Manual of Quantitative Chemical Analysis for the Use of Students. The contents include the partial and complete analysis of manufactured irons, iron ores, titaniferous and chrome iron ores, limestone, clay, slags, coal, manganese ore, nickel ore and alloys. Third edition, illustrated, revised and enlarged by E. Waller. New York. Henry Holt & Co., 1896. 8vo, XII + 417 pp. \$2.

***Cheever, Byron W.**—Select Methods in Quantitative Analysis. Contents include the determination of phosphorus, silicon, sulphur, manganese, carbon in iron and steel; the analysis of iron ores, titaniferous and chrome iron ores, manganese ore, nickel speiss, limestone, slag and coal. Third edition, revised and enlarged by Frank Clemens Smith. Illustrated. Ann Arbor. Register Printing & Publishing House, 1896. Small 8vo, 154 + 11 pp. \$1.75.

Classen, Alexander.—Elementary Quantitative Analysis. Translated with additions by Edgar F. Smith. Philadelphia. Henry C. Lea, 1878. 12mo, illustrated. VIII + 13-328 pp. \$2.

Cloues, Frank, and Coleman, J. Bernard.—Quantitative Chemical Analysis, Adapted for Use in the Laboratories of Colleges and Schools. Third edition, illustrated. London. J. & A. Churchill, 1895. 8vo, 560 pp. \$3.15.

Conington, F. T.—Hand-book of Chemical Analysis. London. Longmans & Co., 1858. 8vo. \$1.87.

Dittmar, William.—Exercises in Quantitative Chemical Analysis, with a Short Treatise on Gas Analysis (business methods). Second edition, illustrated. London. Williams & Norgate, 1887. XII + 318 pp. \$4.20.

Hartley, W. N.—A Course in Quantitative Analysis for Students. London and New York. Macmillan & Co., 1891. Small 8vo, 239 pp. \$1.25.

Slater, John William.—Handbook of Chemical Analysis for Practical Men. Third edition. London. Wm. Mackenzie, 1870. Post 8vo, XVI + 384 pp. \$3.

***Talbot, Henry P.**—An Introductory Course of Quantitative Chemical Analysis, with Explanatory Notes and Stoichiometrical Problems. Third edition, revised and enlarged. New York. The Macmillan Company, 1898. 8vo, 153 pp. \$1.50.

***Thorpe, T. E.**—Quantitative Chemical Analysis. Contents includes analysis of wrought and cast iron and steel, iron ore, chrome and titaniferous iron ores, manganese ore, limestone, slags and coal. Eleventh edition, revised and enlarged. Illustrated. New York and London. Longmans, Green & Co., 1894. 12mo, XIV + 388 pp. \$1.50.

Wing, Chas. H.—Quantitative Analysis. Notes for the students of Massachusetts Institute of Technology; also T. T. Morrell's methods in use in 1881 at the Cambria Iron Company's laboratory. Boston. 1886. 8vo, 43 pp.

Wöhler, Friedrich.—Hand-Book of Mineral Analysis. Translated by H. B. Nason. Philadelphia. H. C. Baird, 1871. 12mo, illustrated. VIII + 315 pp. \$2.50.

d. Books on the Theory of Analytical Chemistry.—The three English works on this subject are given below. Mendeleeff's work is one of the classics of chemistry, written by the great master of the periodic law. In Menschutkin's book both qualitative and quantitative analysis are exhaustively treated; but for the steel chemist wishing to bring his college training in theoretical analytical chemistry up to date the best work of the three is Ostwald's. It is full of the reasons why certain precautions must be taken in analytical work to insure accuracy. The chapter giving the principles underlying filtration is excellent. A chemist cannot but be inspired with a new interest in his analytical work by a study of its contents.

Mendeleeff, D.—The Principles of Chemistry. Translated from the Russian (sixth edition) by George Kamensky and edited by T. A. Lawson. London. Longmans, Green & Co., 1897. 8vo, illustrated. Vol. I, XVIII + 622 pp.; Vol. II, II + 520 pp. \$10.

Menschutkin, N.—Analytical Chemistry. Translated from the third German edition, under the supervision of the author, by James Locke. London and New York. Macmillan & Co., 1895. 8vo, 512 pp. \$4.

***Ostwald, Wilhelm.**—The Scientific Foundations of Analytical Chemistry Treated in an Elementary Manner. Translated with the author's sanction by George McGowan. London and New York. Macmillan & Co., 1895. 8vo, XVIII + 207 pp. \$1.60.

e. Rudimentary Text Books.—From personal examination the writer classifies 25 English books as rudimentary text books adapted only for use in schools and colleges and therefore not necessary for a steel works chemist to own. The titles of these books are given below to show

that they have been included in this review, and to prevent their purchase by professional chemists.

Appleton, John Howard.—A short course in Quantitative Chemical Analysis. Third edition, illustrated. Philadelphia. Cowperthwait & Co., 1881. Small 8vo, 183 pp. \$1.50.

Bernays, Albert James.—Notes on Analytical Chemistry for Students in Medicine. Third edition. London. J. & A. Churchill, 1889. 12mo, 150 pp. \$1.80.

Bowman, J. E.—An Introduction to Practical Chemistry, including Analysis. Eighth edition, illustrated. Revised by C. L. Bloxam. London. J. & A. Churchill, 1885. 12mo, 303 pp. \$2.

Briggs, W., and Stewart, R. W.—Analysis of a Simple Salt, with a Selection of Model Analyses. London. 1893. 12mo. \$1.

Brown, J. Campbell.—Analytical Tables for Students of Practical Chemistry. London. J. & A. Churchill, 1871. 8vo, 60 pp. 88 cents.

Caldwell, G. C.—Elements of Qualitative and Quantitative Chemical Analysis. Third edition, revised and enlarged. Philadelphia. P. Blakiston, Son & Co., 1895. 8vo, 187 pp. \$1.50.

Castell-Evans, John.—A New Course of Experimental Chemistry, Including the Principles of Qualitative and Quantitative Analysis. London. 1892. XII + 201 pp. \$2.40.

Church, A. H.—The Laboratory Guide. Seventh edition, revised. London. Gurney & Jackson, 1894. Cr. 8vo, illustrated. 283 pp. \$2.

Evans, P. N.—An Introductory Course in Quantitative Chemical Analysis. Boston. Ginn & Co., 1897. 12mo, IV + 83 pp. 35 cents.

Hodgkinson, W. R.—Exercises in Practical Chemistry. An introduction to qualitative and quantitative analysis. Third edition, revised. London. G. Kenning, 1890. 8vo.

Jago, William.—Inorganic Chemistry, Theoretical and Practical. With an introduction to the principles of chemical analysis, inorganic and organic. Tenth edition. London and New York. Longmans, Green & Co., 1896. 12mo, illustrated. X + 435 pp. 80 cents.

Ladd, E. F.—A Manual of Quantitative Chemical Analysis for the Use of Beginners. New York. John Wiley & Sons, 1898. 12mo, VI + 82 pp. \$1.

Long, John H.—An Elementary Course in Experimental and Analytical Chemistry. Chicago. E. H. Colegrove & Co., 1895. 8vo, 507 pp. \$2.50.

Mills, John, and Barker, North.—A Handbook of Quantitative Analysis. London. Chapman & Hall, 1889. Post 8vo, illustrated. VIII + 212 pp. \$1.40.

Muter, John.—A Short Manual of Analytical Chemistry, Qualitative and Quantitative, Inorganic and Organic. Eighth edition, illustrated. London. Simpkin, Marshall, Hamilton, Kent & Co., 1895. Large 8vo. \$2.60.

Muter, John.—Practical and Analytical Chemistry. Fourth edition, revised by Claude C. Hamilton. Philadelphia. P. Blakiston, Son & Co., 1891. 8vo, 205 pp. \$1.25.

Newth, G. S.—A Manual of Chemical Analysis, Qualitative and Quantitative. London. E. & F. N. Spon, 1898. 8vo, 462 pp. \$1.75.

O'Brine, David.—A Laboratory Guide in Chemical Analysis. Fourth edition. New York. John Wiley & Sons. 8vo. \$2.

Parnell, E. A.—Elements of Chemical Analysis, Qualitative and Quantitative. London. Walton & Maberly, 1851. 8vo. \$3.50.

Pink, Wm. W., and Webster, Geo. E.—A Course of Analytical Chemistry. Qualitative and Quantitative. London. Crosby Lockwood & Son, 1874. 12mo. \$1.

Sexton, A. H.—Outlines of Quantitative Analysis for the Use of Students. Second edition, revised. London. Chas. Griffin & Co., 1888. 8vo, 138 pp. \$1.20.

Taylor, R. L.—Analysis Tables for Chemical Students. London. S. Low Marston & Co., Limited, 1886. 12mo. 50 cents.

Trimble, H.—Practical and Analytical Chemistry: Being a Complete Course in Chemical Analysis. Philadelphia. P. Blakiston, Son & Co., 1889. 12mo, 116 pp. \$1.50.

Whitlam, W. G.—First Book of Chemical Analysis, Simple Salts. London. Simpkin, Marshall, Hamilton, Kent & Co., 1891. 8vo. 50 cents.

Wills, G. S. V.—A Manual of Practical Analysis. London. 1885. 8vo. \$1.

The Japanese battle ship "Asahi," lately launched from the Clydebank yard, Glasgow, is the largest war ship yet built. The "Asahi" is 425 feet in length, 75 feet beam, 27 feet 3 inches mean draft and has a displacement of 15,200 tons. There are two sets of engines, with a total horse-power of 15,000 and a calculated speed of 18 knots. The armament of the vessel consists of four 12-inch guns, 14 6-inch quick firing rifles, eight 3 pounders and four 2½ pounders. The armor belt has a thickness of 9 inches and the coal capacity is 1400 tons.

The Tin Workers' Scale.

At a conference held in Chicago last week between committees from the Tin Workers' International Protective Association and the American Tin Plate Company a wage scale governing tin house labor was adopted. The men received an average advance of about 25 per cent., but in some plants and on certain kinds of labor the advance was much larger, notably in the case of the plant formerly owned by the Canonsburg Iron & Steel Company, at Canonsburg, Pa., where certain kinds of labor was advanced 100 per cent. or more.

The members of the Tin Workers' International Protective Association are employed in the tinning departments of the tin plate mills, and under present rules are not admitted as members of the Amalgamated Association. It should be understood, therefore, that the wage scale adopted, and which we give below, does not have any bearing upon the tin plate scale for rolling, heating and other kinds of labor formulated by the Amalgamated Association and which will come up for settlement this week. The new scale fixes the wages of plate wheelers, bosh truckers, tin house truckers, plate gatherers, dusters or polishers, edge wipers, klondike gatherers, floor sweepers, branners, mender scrapers, tin house grease and scuff men, reckoners, assorters, boxers, shearmen, tin weighmen, assorting room truckers, waster gatherers, mender gatherers, cold roll men, loaders, annealing furnacemen, unloaders, straighteners, packers and other labor in the pickling department.

The scale adopted was modified considerably from that originally presented by the Conference Committee of the Tin Workers' International Protective Association. As signed by the representatives of that organization and the American Tin Plate Company, the scale in full is as follows:

1. Tanners shall receive on jumbo stacks 5 cents per box, and risers 3 cents per box for all plates occupying over 32 inches of the rolls. For all plates occupying 32 inches of the rolls and under, tanners shall receive 6 cents, and risers (or catchers) 4 cents per box.

2. On double stack and on eight roll standard and ten roll Thomas & White machines all plates of 400 square inches and over shall be designated as large plates, and tanners shall receive 5 cents and risers (or catchers) 3¼ cents per box. And all plates under 400 square inches shall be designated as small plates, and tanners shall receive 5¼ cents and catchers 3¼ cents per box.

3. For single and eight roll Thomas & White machines and eight roll short coupled Thomas & White machines, all plates 400 square inches and over shall be designated as large plates, and all plates under 400 square inches shall be designated as small plates.

4. For large plates tanners shall receive 6¼ cents and risers 3¼ cents per box. For small plates tanners shall receive 6¼ cents and risers 4 cents per box.

5. Onterne or lead stacks (Jumbo or Huzzey machines) tanners shall receive 4¾ cents and risers 3 cents per box.

6. That onterne lead stacks, single Thomas & White machines, tanners shall receive 5¼ cents per box and risers 3¼ cents per box.

7. For heavy coated ternes, charcoal lead and charcoal bright plates, better than Allaway grade, made on Thomas & White machines, tanners and risers shall receive 12½ per cent. advance over existing local rates, it being agreed, however, that Allaway grade charcoal bright plates made on a Thomas & White machine shall be paid for at the coke rates mentioned in prior sections of this agreement.

8. A gain of one seventh over above rates for each full cross heavier than full weight IX shall be allowed tanners, dippers and risers working by the box for bright charcoal plates better than Allaway grade, and a gain of one-seventh over rates mentioned in prior sections of this agreement shall be allowed tanners and risers working by the box on each full cross heavier than full weight IXX plates for coke and Allaway grade charcoal plates.

9. On combination stacks tanners shall receive 6¼ cents and redippers 7½ cents each per box, and risers 4½ cents each per box for double rolling and 4 cents per box for single rolling, on all grades of charcoals and extra coated ternes.

10. It is hereby agreed that 31,360 square inches shall be the number of square inches in a box of tin.

11. It is further agreed that the parties of the first part shall report daily the output of the tin house in all mills.

On general labor the following clauses were adopted: Where the rate paid prior to January 1, 1899, was \$1.50 per day or less the new rate shall be 15 per cent. higher. Where the rate was from \$1.50 to \$2 per day the rate shall be 12½ per cent. higher. Where the rate was from \$2 to \$2.50 per day the rate shall be 10 per cent. higher. In view of the fact that some advances have been granted since January 1, 1899, the prices to be paid after July 1 are not to be figured on present prices, but are to be figured on prices paid prior to January 1, 1899.

That at the option of the American Tin Plate Company a box or tonnage rate not in excess of the adjusted day

rate may be fixed to govern the pay of all operatives named in clause No. 10. This box or tonnage rate to be established locally by the district manager representing the American Tin Plate Company, and the national president and district vice president representing the Tin Plate Workers' International Protective Association.

It is further agreed that no tinner shall be required to tin plates on Saturdays later than 12 noon.

Eight hours to constitute a day's work.

Lake Iron Ore Matters

DULUTH, June 12, 1899.—The annual meeting of the Minnesota Iron Company was held in Duluth Monday, and considerable interest attached to it, as it was thought possible there might result therefrom some new moves toward the acquirement of additional ore lands and mines by the company for the use of the Federal Steel Company. Those who attended the meeting were President Gary of the Federal Steel, A. R. Flower, H. H. Porter of their directorate, Edward Shearson, their auditor; Henry Siebert, H. H. Hollister, Geo. S. Brewster, E. J. Buffington, J. H. Chandler, C. W. Hilliard, C. P. Coffin, these three being officers of the Minnesota Iron Company; M. J. Carpenter, president of the C. & E. I. road; C. H. Ackert, president of the Elgin, Joliet & Eastern, part of the Federal Steel properties; E. W. Winter, manager of the Chicago, St. Paul, Minnesota & Ohio road; W. K. Coffin, G. H. Ball of Boston, J. H. George of Milwaukee and Mr. Vernet of London, a director of the Chicago Great Western road.

During the months of April and May, 1898, there passed out of Lake Superior 1,629,000 gross tons of iron ore for the Eastern docks. This year to the same date there passed out of the same lake only 1,445,888 gross tons, and yet the report is that more ore by several hundred thousand tons has gone forward this year than last. It is stated that the docks at the head of the lakes have shipped this year to June 1 119,000 tons more than last year to the same date. If this is so it is hard to understand where this excess has gone to, not through the Sault yet surely. Probably the early June movement is immense. It is a fact that shipments are now much heavier than at this time last year, and that July 1 will see a better total than ever before for that date. The forward movement now is something tremendous, amounting from all upper lake ports to not far from 100,000 tons every 24 hours. Other commodities are moving slowly, and wheat is almost a drug in Lake Superior elevators, though the prospects are for an excellent crop and a big trade in September and later. Ore rates have not changed since my last report, remaining at 75 cents from the head of Lake Superior and at corresponding rates from other ports. There is an added depth of water in the channels connecting the lakes of about 6 inches, and there is no doubt that full 18 feet can be loaded in a few weeks, making the best water ever known, and resulting in better loads and some more smashings of records. Every inch added to the available depth of the present day ships means an additional 40 to 60 tons of cargo.

Mining men are figuring on how much they lost this year by contracting their sales early, and they are so sick as a result that they begin to talk of \$1 a ton additional price for next year's ores. It is said that the steel makers expect to see ore prices set at about that increase for the coming year, if things continue as now. The past few weeks have seen many ore buyers looking over the mines and stock piles, and in some cases over the waste dumps and stores of old ores long ago brought to surface, in search of something they could use. But they have found most of the supplies already taken up, and have made few purchases of moment.

On the ranges there is the same activity as of late. The Mesaba is seeing several new explorations start this week, among them properties in 1, 57-18, by the C. N. Nelson Lumber Company, where there are excellent indications; in 25, 58-17, by D. T. Adams and others, and in 19, 58-17, by G. A. St. Clair and others. In 4, 58-17 P. L. Kimberley and others are at work and have excellent indications. Last week a very severe rain drowned out the open pit work at the Fayal, and compelled cessation of operations there and at the Adams for some little time. The Adams is more than making a record for itself, and is shipping nearly 5700 tons daily. The Oliver and Lone Jack, of the Carnegie Company, will be worked very little this year, the tonnage contracted by that company with the Duluth, Missabe & Northern road coming almost entirely from the Mountain Iron. Orders were received this week from Chicago to resume full operations at the Franklin and the management is now busy in getting men. Men will be brought from the East for some of these new operations this month. The Franklin will ship to the furnaces of the Republic Company.

On the Gogebic there is said to be not one idle property from Ironwood to Bessemer, many of which have been quiet for many years. The Ironton property has been

taken by Corrigan, McKinney & Co., which will give the firm a length of 1 mile along the strike of the range, their connected holdings including the Puritan, Federal and Ironton. This consolidation is a very fine property, and one that can be extensively worked for years for a high grade ore.

The Volunteer mine, Marquette range, is being unwatered rapidly, and the water mark is now about 180 feet below where it was; the use of blowers for throwing the water has been discontinued and the pumps are now handling it. The mine has a vast space underground, and the work has been very great. The Goodrich mine, south of Ishpeming, has been bought by A. B. Miner, and is to be opened and extensively worked. It has been idle for 17 years. Surely when the demand for ore brings such properties as this into the active list again there is something wonderful about it. The old dump at East New York mine is being picked over and what is marketable shipped. This is not the only old dump that will be gone over this year.

On the Menominee the American Steel & Wire have corralled a property, and several more explorations have been taken over by big companies, in addition to the many noted in this correspondence of a week or two ago.

D. E. W.

Experience of a Chicagoan in Germany.

J. G. Braun of J. G. Braun & Co., 322 and 324 South Paulina street, Chicago, has just returned from a business trip to Germany. He was greatly impressed by the evidences of prosperity among manufacturing interests. This prosperity, he says, is general, not being confined to a few industries but prevailing among all of them. The pressure for their products, he believes, is much in excess of that prevailing here. Orders for iron and steel are being turned away for deliveries from 12 to 20 month hence. It is claimed that in the Rhenish provinces 4,000,000 workmen are employed at present, and that double the number could be put to work if they were to be had. Common laborers are receiving 3½ to 4 marks per day, equal to 87½ cents to \$1, which is a high rate as compared with their wages in dull times. Although the demand is so heavy and great scarcity prevails in all lines of manufactured products, the Germans have not advanced their prices so rapidly as manufacturers in this country. Those having an export trade are particularly cautious in endeavoring to keep down prices for fear of cutting off such business. While in Germany Mr. Braun secured the sole agency for the complete line of products manufactured by L. Mannstaedt & Cie, Faconelsenwalswerk, Kalk, Germany, consisting of ornamental wrought iron, such as moldings, sash and other light structural shapes, leaf work, &c., as used by architectural iron workers. Braun & Co. propose shortly to open a branch in New York City, where they will carry a full stock of these goods as well as in Chicago.

The Buffalo Foundrymen.—After several informal meetings of the foundrymen of Buffalo they met on June 2 at the Hotel Iroquois and perfected a permanent organization. They adopted a provisional constitution and by-laws, built very much upon the lines of the Philadelphia and Western Foundrymen's Association. The following officers were elected: H. W. Wendt of the Buffalo Forge Company, president; Lawrence Glinther of J. Glinther's Sons, vice-president; C. M. Farrar of Farrar & Trefts and East Buffalo Iron Works, treasurer; S. W. Spear, superintendent of the East Buffalo Iron Works, secretary, and the following Executive Committee: The president, Gibson Howard of the Howard Iron Works, Geo. M. Trefts of Farrar & Trefts and the Brown Car Wheel Works, Charles M. Greiner of the Buffalo Pitts Company and J. J. Lawler. A committee was appointed to revise the constitution and by-laws, and report at the next meeting of the association, which will be held at the Hotel Iroquois Friday, June 16, 1899.

A New Furnace at Chicago.—The Iroquois Iron Company, Chicago, have purchased a large tract of land adjoining their property at South Chicago and will shortly begin the erection of a second blast furnace. The new furnace is to have a capacity of 100,000 tons annually. The present furnace makes 80,000 tons. The company will build an additional dock on the Calumet River for the receipt of ore. All the arrangements in connection with this extension of facilities are to be of the most improved character. The Iroquois Iron Company are closely affiliated with Rogers, Brown & Co. The resident partner of this firm at Chicago is M. Cochrane Armour, who is also president of the iron company. The secretary and treasurer is G. A. Tripp, formerly of the firm of C. Sidney Shepard & Co., Chicago.

Trade, Trusts and Tariffs.*

BY A. B. FARQUHAR, YORK, PA.

The theme chosen for my address this evening affords abundant room for discussion. We are all interested in trade, and in trusts and tariffs as they affect our business. Currency and revenue legislation do not properly belong to party politics—ought not to be treated as if they did, and I need hardly say I shall not so treat them. I belong to neither party, but find much to criticize in both; I highly value my independence, and to fellow-independents address myself. Since the prosperity of the foundry business depends upon general trade conditions we are interested in whatever affects production universally. But we live in the Iron Age, and as successors of Tubal Cain we are especially concerned with iron.

The manufacture of iron is of remote antiquity. It is spoken of in several places in the Pentateuch, also in Job and the Prophecies. Old English translations speak of "steel" also, but erroneously; their Hebrew word really means "brass." Homer, Hesiod and Aristotle have a good deal to say of iron. Founding or casting iron is a comparatively recent invention. It is true that an iron statue has been discovered in Egypt which was probably manufactured at least three thousand five hundred years ago, and a recently found statue of Hercules must antedate the Christian era seven hundred years, but the metal is malleable and believed to have been forged. The first castings that we have record of were made toward the close of the fifteenth century, and it was not until well on in the eighteenth that coke was first used for casting iron, anthracite being introduced about 1820. Iron must have been made in immense quantities by the Romans. Twenty blast furnaces in Germany were supplied for two hundred years from cinders left by the Roman iron works, over which a great forest had grown, but these furnaces were very primitive and a ton per day was considered a very good yield. Indeed, from the earliest records three thousand years ago down to the seventeenth century there was but slight improvement made in the mode of converting iron from the ore, and the same methods are yet pursued in India, Madagascar and other Eastern nations. The style of furnace now used was invented about the year 1825.

The progress in shaping wrought or malleable iron was about as slow. It was not till the year 1783 that grooved rolls were invented. Up to that date iron bars were forged, and according to the best obtainable data, until the seventeenth century the total yearly amount of iron manufactured in the world did not equal the product of one of our improved furnaces to-day. But it is of the present situation I propose to speak now.

Official statistics with regard to the foundry industry are disappointingly scarce. In the census reports "foundries and machine shops" appear together. The proportion of iron used in foundry castings is about one-fifth in Germany; though not ascertained for other countries, we may accept the same fraction as holding approximately true everywhere. Applying it to our own production, we infer that this country so uses over 2,000,000 tons of pig iron annually. The product of our foundries has hitherto been consumed within the country, our export being, until the last year or two, insignificant. This export is mainly of pipe, but also includes builders' hardware and malleables.

The condition of productive business is so much of the time unsatisfactory, and the difficulty of finding a market so serious for the producer, that we warmly welcome a season of brisker demand, freer payments, orders crowding upon us and better opportunities for the disposition of our wares, and we all rejoice in the good times of the year 1899. It is only because I would have this year the forerunner of a series equally bright rather than of a gloomy season of reaction that I now ask attention to some of the darker lines in the picture.

We have had good times before—in 1872, for instance, and 1879 to 1881, and 1891 to 1893, and we too well remember the dreary depressions by which they were followed. If disasters like those are now to be avoided, it can only be by taking careful account of every feature in the present situation from which a warning can be drawn. Our trade is prosperous as a whole. The marked improvement began in 1897, when we broke all previous records in exports of domestic merchandise, shipping ten hundred and eighty million dollars' worth. In 1898 our exports exceeded twelve hundred and thirty-three millions, those of manufactures forming one-fourth of this total, or three hundred and eight million dollars' worth—10 per cent. above the highest previous figure. All iron and steel wares shared this increase. By this time our exports exceed \$70,000,000 worth annually,

more than five times the value of our imports; 20 years ago the figures were almost exactly reversed, the exports of iron and steel manufactures amounting to barely one-fifth of the imports. The value of agricultural machinery exported, for instance, rose from \$5,303,000 in 1897 to \$9,073,000 in 1898, or about 70 per cent. Exports of plows nearly doubled from 1897 to 1898, while those of reapers and mowers more than doubled.

But there is no call to weary you with details, the general advance along the line in both domestic and foreign trade being too clearly marked.

Our production of pig iron, for no previous year so high as 10,000,000 tons, last year reached 11,700,000 tons, exceeding the British output by 50 per cent., and nearly equaling the whole world outside of Great Britain. This increase in production was accompanied by decidedly sharper demand and continually rising prices. The present year has brought nothing thus far to discourage, everything to stimulate, that industry. If production continues at present rates, a total output exceeding 13,000,000 tons may be realized; prices are still booming, the increase since last summer being 55 per cent. on pig and 70 to 100 per cent. on pipe, rolled iron and steel; altogether the opportunities afforded to iron production by the present situation are simply unequaled.

The manner in which all this prosperity is distributed is not quite so satisfactory. The material interests of the community as a whole, to say nothing of abstract justice, are intimately concerned in the question of distribution.

The Problem of Trusts.

What is known as the problem of trusts is in its essence whether the best opportunities shall fall to few or many; and it is made more difficult by the amount that can be said both for and against the organizations called by that name. The movement against trusts has been long and earnestly pushed by intelligent people, and yet so far from having made any progress, it has never lacked so much of success as it lacks to-day. Trusts have never before held their ground so triumphantly or made so many threatening invasions of new territory. The combat against them is growing more and more difficult year by year, indicating that we have not found the proper method of attack or failed to discover their source of power. If ever curbed, it must be at once, or nothing is left for us but submission.

But before we can safely enter the lists against an enemy it is well to know something about him; in what ways he may be dangerous and in what ways harmless or helpful. With no more knowledge of trusts than is displayed by many who talk about them, fighting would be only striking out in the dark. The fact is that, technically speaking, there are now few if any trusts in the United States. That form of industrial combination was once prevalent, but it has substantially disappeared. We used to have trusts—that is to say, associations or corporations intrusting their management to a board of trustees that carried on operations and divided profits. But these have given place to consolidated corporations, smaller concerns passing into larger, without assuming a new character or modifying their corporate functions in any way. This change, first invoked by hostile legislation, admirably suited the purpose of the trusts themselves; their consolidation grew more complete, and closer unity gave greater power, while the desirability of avoiding difficulties by abandoning the trust form, while holding fast to every advantage it afforded, was quite evident. In fact, while laws to permit trusts may be quite constitutional, it is difficult to see how a law to prevent corporations from consolidating could stand. It would be too much like an attack on property rights, which necessarily include the right to sell, and hence to buy out other people. Whether we have trusts to deal with, however, or giant corporations under another name, need not concern us; we are considering the *thing* rather than the designation. But it is interesting to observe how superficial the change that enables these colossal industrial combinations to escape all the trouble that legislation has prepared for them; it thus appears how ineffectual any "anti-trust law" must ever be to contend against them.

The Advantages of Consolidations.

Furthermore, in order to understand the real nature of these combinations, it is essential to distinguish the good from the evil in them. Our most dangerous enemies have their better side—"there is a soul of goodness in things evil." Trust is a Christian virtue; only those who have learned how to trust will combine. In the first place, there is sometimes reason for the claim that "trusts make things cheaper." But the claim is pushed too far when we are asked to excuse the manifold iniquities of the Standard Oil because the price of refined petroleum has fallen. We must remember that when petroleum has once been found, its output cannot be repressed as that of other products; and that to store

* An address before the Foundrymen's Association of Philadelphia.

large quantities of it, and so keep it out of market, is exceptionally difficult and risky. The progress of invention has cheapened mineral oil as it has many other things; raw cotton, in fact, whose production has been controlled by no combination, has fallen quite as remarkably. But consolidation of capital reduces costs, can reduce prices, and sometimes does. A more perfect organization gives opportunity for better economic methods in purchasing, in manufacturing, transporting and marketing, and in mastering thousands of petty but necessary details. An important economy comes from specializing business among different establishments. Another results from avoiding the many wastes of competition; and this usually determines whether there shall be a trust or not. In such a business as sewing machines or stoves, for instance, where the cost of selling is 30 per cent. of the cost of manufacture, or more, combination is highly economical. But in the general foundry business, employing no traveling salesmen and comparatively little machinery, there could be no such advantage, and therefore this business has little to gain by forming a trust, and much to suffer if our supplies are cornered. Combination does tend, as a rule, to make the market less speculative. Our industrial trusts may not give us the best form in which consolidation could be consolidated, but that there will be consolidation in some form follows necessarily from the law of evolution. Indeed, the progressive march of industrial combination is something impossible to withstand. Washington Gladden, a well-known writer on social questions, truly says:

"Concentration in all the great industries is the word of the hour. We can no more go back to the old economic régime than we can return to the stage coach and the hand loom. The only question is, who shall control these vast enterprises? Is the capital of the country all to be gathered into the hands of a few men and administered by them according to their pleasure? Doubtless, if we could be sure that the managers of these gigantic industries would all be sagacious and unselfish men, consulting the public interest in all their actions, this might be a desirable arrangement. But experience does not encourage us to look for such virtues in those who possess such enormous power."

The Evils of Trusts.

The vices pertaining to men in industrial combinations are perhaps not greater than those of imperfect human nature in separate action, except in so far as their association gives them added strength. Yet those vices must not be slighted. That repression of manly development and character which comes of resigning our independence and becoming merely part of a machine is by no means least among them. The cheapening of commodities above spoken of generally results from forces beyond the control of the trusts; while the resistance to cheapening, through cutting down production and thus promoting scarcity, is altogether voluntary with them. While they are curtailing their output to run up the price, they do not consider whom they thus deprive of employment—steady prices are more important to them than steady work. And while illiberal toward the public and harsh toward the working class, they are utterly merciless toward all rivals. Their mischief has grown with their power, by closer consolidation; the trusts were mild and innocuous by comparison with the combinations that have supplanted them. One of the greatest evils shown in connection with them is in their overcapitalization of stock. When we learn that in one month, in one State, corporations of a total capital of over a thousand millions were chartered—as was the case in New Jersey last March; when we read the list of such organizations, all of recent origin, with nominal capital of six thousand millions, and know that they probably represent a true value of less than one thousand millions, we may be assured either that the investors are to be robbed, or that they will profit by plundering the public. Many of these joint stock corporations are formed with a view to selling the stock, and thus coining a huge profit on water. Sometimes projectors succeed in this by mere trickery, but more often there is some concealed advantage they enjoy which goes to explain their success. No share in an industrial enterprise could sell at very much above its actual cost unless there was some kind of monopoly behind it—based on land possession, or a patent, or a special legislated privilege, or unrestricted possession of its field assured by force. Serious as this evil is, the consequences to which our neglect to cure it may lead are no less serious to contemplate. Let me quote again from that clear sighted writer, Washington Gladden:

"Such a gigantic attempt to bind burdens upon the whole community of consumers must provoke a violent reaction. These thousand millions of watered stock are simply a legalized demand upon the people for contributions of their substance to those who have given them nothing in exchange. The feudal lords of the olden time

made no such unjust demand. It will not be endured. And there is terrible danger that these injustices will be swept away by a whirlwind of popular wrath."

Beyond question these evils, belonging to or associated with combined capital, ought to be cured if curable. One way to meet them is by proclamation and denunciation. It is confidently promised that the next Republican platform will contain "a ringing plank against trusts." That the Democratic opposition will equal or outdo that example in pronouncement is accepted as altogether probable. Thus will the air be filled with claims and counter claims, in the midst of which the trusts themselves will suffer not a particle. They thrive on opposition like that. I have already given reasons for believing that anti-trust laws of the usual general kind are very little more effective than platform proclamations. Nor, so long as laws are of this character, is there much hope that individual States can operate them more successfully than the general Government. The efforts of a few States, particularly Missouri, are certainly not encouraging. Laws impairing the obligation of contracts would do more harm than good, even if they were not glaringly unconstitutional. Everything that has been heretofore done in this line has not only not helped, but positively hurt us, by driving producers from trusts (properly speaking) into the closer combinations that are so much more dangerous. Law can do something for the public even in this case if rightly contrived; but law of the kind contemplated in platforms and hitherto enacted—a dead letter *ab initio* because totally unenforceable—is the very food that the trusts thrive upon. It would be unfair to pass from the topic of humbug remedies that only aggravate the complaint, and make no mention of that most dangerous humbug of the lot, the one which pretends to subdue all trusts by striking a blow at a bogie called "the money trust"—that is to say, by a wholesale violation of the obligation of contracts. The most effective service that can be done for these aggregations of capital is by demanding some cure that will be worse than they are, and so giving them a factitious respectability by contrast; and just that service is done them when it is proposed to fight them with free silver.

Government Control.

Among the proposed remedies for the trust evil is that of putting more power over the management of industries into the hands of Government—giving it the same control over other enterprises that it now has over the postal service. Natural monopolies, we are told by more than one thoughtful writer, belong to the whole people and should never be allowed to pass into the hands of a few. Following this principle, the monopoly advantage now enjoyed by private associations of capitalists would remain to the people and be administered by their agents for their benefit. The plan would be excellent, if it could be made to work as its proposers would have it work. But can it? The difficulty is this: What those writers prove is that this business is suitable to governments as they ought to be, while our practical problem deals with governments as they exist. Regulation of great industrial enterprises might properly enough be committed to a Government administered with strict integrity and economy by capable and broad-minded business men; if we handed them over to the rulers we now choose we must expect to see enterprises undertaken as our river and harbor improvements, public buildings and post route extensions are now undertaken—too often not because they will repay their cost, not because the public interest calls for them, but because some politician with a strong pull is able to force them through. We must expect to see the choice of men to conduct these enterprises made on similar grounds. The idea can be regarded as practicable only when business principles shall have taken a firmer hold upon the conduct of our Government than they yet have; when business methods shall govern public improvements and shall not be forgotten even in the allotment of pensions; when the business rule of assigning places according to fitness is as firmly fixed in our republican system of government, and when the demands of what is known as "civil service reform" shall be accepted as an unquestioned matter of course. Government of, by and for the people is a glorious thing, as we all confess, but it needs to pass through a further probation before it can be trusted with direct charge of industries.

Taxation.

But there are a good many things that the Government can do for us indirectly, and one of them is to break up the condition under which the evils of which we complain have their rankest growth—that of secrecy. Legislation can be used to let in the light; to show truth where now is confusion. It may attach conditions to the corporation which it creates; among those that have been recommended are that the books of stock companies shall be open to inspection, and that no such company shall be admitted to corporate privileges on its own valuation of

its stock—official valuation being made an indispensable condition. Publicity would be one remedy for the pernicious evil of watered capital; another remedy, not insurmountably difficult to apply, would be taxation. A tax based on nominal capital might easily have some effect to prevent that capital from being exaggerated. It would have a greater effect in that way if the amount of capital actually paid in were deducted from the assessment, so that the tax burden might be borne by the water alone. Graduated taxation has also been suggested; the effect of this would be to discourage consolidation in very large aggregations, since the same money invested in one capital stock would be liable to a higher tax than if divided among many. I shall not undertake to say which of these proposed plans would be best. Taxation is a complicated matter, and a theoretically bad tax that can be collected certainly and equally is to be preferred to a theoretically better tax that cannot be collected. In considering what would practically prove the best way to tax corporations, we must have at command all human experience of taxation, and at the same time not leave out of view the hundreds of expedients by which the corporations may creep out of paying.

Would it not be possible, it may now be asked, to disarm the trusts by taking off taxes that help to create the monopoly on which their inordinate profits depend, and so control them more effectually than by imposing taxes upon them? The tax they might perhaps evade, but there is no dodging a removal of the tax now levied upon the people for the benefit of the trusts. Monopoly, brought about by nature, or favoritism, or force, is, let me repeat, the condition which the trust most earnestly seeks to secure, and the enjoyment of which gives it most power over the community. Deprive it of monopoly and we disarm it—there is little use in trying to fight it any other way. And yet the law, on which we depend for aid, seems in certain of its provisions as though deliberately calculated to give trusts every advantage. It imposes taxes on commodities entering the country from outside, and thus renders it easy for any organization that may acquire control over the supply of those commodities within the country to enjoy a substantial monopoly, increase the profits of production and rate its capital stock at an inflated valuation. The monopoly, partly assured by favoring tax laws, is rendered complete by force—rivals being suppressed by the combination through what are virtually acts of war. Thus comes about the alliance of tariffs and trusts, contemplated in the title to this address. This alliance it is that is driving so many people, from different parts of the country and from the ranks of different political parties, to advocate tariff modification as the proper cure for the trust evil.

Trusts and the Tariff.

This is no suitable arena for partisan contentions, and it is a wise rule that excludes questions of politics from discussion here. But though the tariff issue is one on which elections have often turned heretofore, and may turn hereafter, it is happily not in politics as we are considering it. In the inner circle of Colonel Bryan's adherents it has been accepted as party orthodoxy to leave the tariff alone and strain every nerve to overcome "the money power;" while, on the other hand, some of the most earnest appeals for reduction of duties on articles controlled by trusts have come from stern, unbending Republicans. Though advocates of protective duties on other products of industry, they argue, not without reason, that the application of such duties to increase the cost of trust controlled products must tend to discredit protective duties altogether. We may therefore consider this proposed remedy without fear of bringing it into politics. So considering it, we must see at a glance that there are a great many products of manufacturing industries in this country which, whatever may have been their need of protection heretofore, most certainly do not need it to-day. In the ten months ending with April last the country exported \$276,000,000 worth of manufactures, nearly 18 per cent. more than the corresponding ten months of 1897 and 1898. This amount, considerably exceeding that of our imports of manufactured goods for the same period, covering a wide range of products, conclusively proves that we have nothing to fear from foreign manufactures. Yet a duty is still demanded on these very products, and why? Not for revenue, because the Government gets no revenue from such duties, but to enable the combinations that monopolize their production to exact higher prices in this country than they can obtain abroad, and for no other reason. The Sugar Trust, with its rebates to encourage exportation and its high protective duty to keep up the price of its product within the country, thus favored by the law in two directions; the steel rail combine, which sends its product to all quarters of the globe (one mill recently shipping 70,000 tons of rails for the North China Railway) and puts them down at the very doors of the British shops, while at the same time a Boston company finds it cheaper to get rails from

England and pay the duty than to buy at the terms allowed at home; the tin plate monopoly, special and particular favorite of protective legislation, now empowered to exact whatever prices it thinks the public able to bear; these and many other associations, all profiting handsomely by legislative favoritism, tempt us to appeal to the law not to lay its hand upon them in any way directly, but only to lift from us the hand with which it holds us down in order to give the monopolies advantage.

You need not accept my testimony unsupported. The officers of a prominent manufacturing company in Wisconsin, convinced that the high duties of our present tariff law were provoking retaliation on the part of more than one country of continental Europe, where it would be advantageous to us to sell machinery, sent out a circular letter a few weeks ago to manufacturers throughout the United States. In this circular the opinion was plainly expressed that this country had passed the need of protection in machine construction, and that the tariff thereon ought to be greatly lowered or abolished altogether; the views of correspondents on the subjects being also solicited. By the kind permission of the authors of the circular I have been enabled to read a number of the replies. The great majority of the writers, representing well known houses from Pennsylvania westward, agreed that the policy of reducing duties and so warding off retaliation from abroad was now preferable. These writers held the point of view of the manufacturer, seeking to build up an export trade, and their testimony goes to prove that machinery in this country needs no tariff protection. Nor do I see how any manufacturer, desiring only a fair show in home markets and not an opportunity for extortion, can fail to agree with them. This country has grown great in manufacturing because it can make iron cheaper than any other if it chooses. It is the great magazine of essential supplies—timber, limestone, coal and metals, as well as exhaustless stores of food at easy command. Moreover, it is peopled by an ingenious and energetic race—the very pick of the best stock in the Old World. To teach that such a people, in such a land, could not prosper and push ahead without tariff duties has been proved flat absurdity.

Since we are so loudly told by the trusts and combines and their organs and dependents that it was the very mild and modest curtailment of their monopoly privileges in the tariff of 1894 that caused the business depression of 1893, it is worth while to stop for one minute to inquire how that depression really came about. The matter is well enough understood, of course, by those who remember the conditions of the time, and therefore knew that tariffs had no more to do with our trouble than the Chicago Fair had, and less than the Baring failure in London; but there is no harm in setting it straight again. Legislation enacted in 1890 for the benefit of the silver mining interest, joined with the Dependent Pension bill and a large reduction of revenues by putting sugar on the free list that year, created grave uneasiness abroad, and a resulting apprehension lest silver dollars might be forced upon creditors by the United States led to withdrawal of foreign capital from investments in this country. The return of our securities from Europe is plainly shown in the large trade balances of those years—our specie and merchandise going abroad to square the account. This movement would not alone have been sufficient to cause trouble on this side—for quite as much foreign capital has been withdrawn in the last two years as in 1891 and 1892 without hurting us in the least—if the distrust had not extended to our own people. First, credit was withheld by those who feared that what was advanced on a gold basis might be repaid in depreciated silver; then, by a natural perversion, credit was refused generally and all kinds of money hoarded; and the crisis was upon us. The banks and business houses that first fell were those most involved in speculations; real estate booms, mines and fancy stocks. Manufacturing works did not fail or lose credit until other concerns began to drag them down. These are the facts, as will be recalled by all whose memories run back six years. But it is so easy to beguile people who do not remember that it cannot surprise us to see interested men confidently maintaining that all that distress originated with the manufacturing industries and was due to the very moderate tariff reduction then contemplated and afterward made.

This alliance of trust and tariff ought now to be so plain that no intelligent man could hold a doubt on the subject. Yet people are perpetually trying to confuse it, and successfully confusing it for many minds, by suggesting that associations and combinations are not unknown in free trade England, and that many products not covered by an import duty (as petroleum) are subject to combinations here. This is a fog that can be blown away in a moment. We are not claiming that associations of producers are under all circumstances an evil, for we freely admit that they must continue to exist—that union for business purposes is something that has come to stay. The evil comes in when the association is encouraged to oppress fellow citizens by a monopoly which

legislation has made and may unmake. Precisely the same organization may be a flagrant evil if granted a monopoly, and quite harmless if not so favored. Further the monopoly that renders the trust formidable may arise from other sources—possession of land, deals with private corporations, and what not—as well as from legislation. But that does not prove in any way that we ought not to avoid using legislation to create monopolies. We see, too, why the trusts and combines are so much more harmless in England than here; legislation there does not put a weapon into their hands to aid in reducing citizens to submission. A recent editorial in *The Iron Age* suggests the danger of wage reductions as a result of tariff reduction, but its argument has exactly the same force against every possible cheapening of trust controlled articles. I must confess that these pretended objections appear to me almost too childish for discussion among candid reasoning men. I cannot believe that such men have a real doubt on the subject. If asked, Will you vote for the repeal of every duty which creates a monopoly, every duty which by cutting off importation from abroad cuts off all revenue from the Government and at the same time enables the trusts to maintain prices against consumers in this country?—a negative answer can only come from an ally of those trusts. He who sincerely opposes them will unhesitatingly answer, Yes. That is the test question.

There are good reasons for believing that if we only suppress the monopoly features of these combinations and prevent their doing so much of their work in secrecy, the community is not destined to suffer the injury from their machinations that so many timid people fear. I believe this because I have faith that the universe is governed for good and that what ought to be will be; also because I have boundless faith in my country and her ability to come out right on all points in the end. There seems to be an inherent tendency to disruption in these organizations, explainable in several ways: divergence of views on the part of those participating, naturally arising, from the reluctance we all feel against surrendering the management of our affairs into the hands of others, outside rivalries which occasionally prove too strong to overcome, business losses, whose effect is always to aggravate disagreements and strengthen rivalries.

Tendencies in Trade.

Even the shrewdest calculator may be deceived as to general tendencies in trade. It is somewhat surprising, for instance, that this enormous amount of gold mining and coining has not done more to raise prices. Even in this season of brisk demand and heavy export trade prices are, except in metals, still below the level of May, 1893. Even in their own affairs the best judges may be misled. I have seen many interesting examples of this in my 40 years' observation of the iron market. Men reputed able judges told us that the high prices early in 1873 were going higher yet with little prospect of ever coming down; and we all remember how the latter months of that year opened their eyes. Early in 1880 the same views were held, and one iron broker was so sure of an advance in February that he was quite willing to let me have a lot of pig iron, then selling at \$36, for the price that would prevail four months later. The rate I paid was \$22. There were in 1880 no business disasters to explain the reaction, such as those of 1873; and I earnestly hope we shall see none this year. It is the general impression among iron men that prices are going higher. Edward Atkinson, the great Boston statistician, thinks there will be a scarcity of iron for some time to come. I will quote from his last letter to me:

"Do you remember my prediction made ten years ago that the close of the century would find all existing furnaces incapable of supplying the demand for iron? Prices may be rushed to an extreme and react, but can be carried to no point that will prevent or seriously retard the accelerating demand for two or three years to come."

None the less, and despite my faith in Edward Atkinson and the favorable conditions for a rise, I do not look for a long continuance of even the present abnormal prices for iron and steel. I believe that the large foreign shipments now made are mainly to fill contracts dating from before the rise (coinciding, we must remember, with high prices and scarcity of iron in Europe), and that fewer new contracts for delivery abroad are made at present rates. Also at home a check is noticeable in new undertakings requiring iron and steel. This indicates that the movement has reached an upper limit; and a reduced wheat crop this summer, which now seems only too probable, may make the reaction the more marked. Although the demand is likely to continue large and at good paying prices, the present condition of the iron trade is evidently too abnormal to last. But the sharpest business eye may sometimes be blind to the signs of the times.

Another ground for hope in the contest between any ring of capitalists and the whole country is based on the

simple fact that capitalists soon die, while the country lives. Not often are the heirs in whose behalf the trust magnate labors capable of carrying on his work. When he drops out, therefore, his capital and his skill usually go in different directions, and the people profit by the change. When the Rockefellers and the Havemeyers and the iron kings pass off the stage, will they leave successors as formidable? Furthermore, there is a disposition on the part of owners to popularize their stocks, of making friends and conciliating opponents, which helps to extend ownership over a wider circle. Associated with this is a movement which has already made some headway and is destined to make more—to admit employees to ownership. The trial of this plan made by the Illinois Central Railway is said to be very successful. The establishment of a common interest between workmen and capitalists may easily prove a shrewd policy on the part of that corporation—which has already suffered from a bad strike—and may thus set an example, which will be widely followed. This does not exhaust the field of possibilities, looking to natural remedies for the trust evil; it only tends to show that our case is not hopeless, if our legislative work against it is directed at the two vital points, monopoly and secrecy.

A Sound Currency.

A discussion of the combinations called trusts must needs show much that is vicious in them, yet it hardly seems fair to conclude it without calling attention to things that are more vicious, more dangerous and more important to guard our country against. If our monetary perplexities are going to lead us into paying debts with false coin, or offering anything less than 100 cents on \$1 in the recognized money of the world as an equivalent for what we have promised, then we are incurring a far worse peril than any to which the mightiest trust could subject us. Better submit to extortion, if we must, than to a general corruption. Better be wounded than introduce a poison into our blood; for a sound currency is the life blood of the body politic. Again, if the successful war we have just finished shall lead us to waste our strength, our substance and our national character in further military preparations; if the increase in our army and navy appropriations, from \$40,000,000 to \$240,000,000 in a single year, is something to be persevered in and not promptly reversed; if we are to make any more such bargains as that which bought us the Philippines, and wilt them a war on which we are spending, directly and indirectly, about as much every day as we have ever gained from their commerce in a year; then we must look on this awakening of the military fever among us, and not on the trusts, as our more dangerous enemy.

Only the blindest of enthusiasts or wildest of lunatics could overlook the crushing burdens under which the countries of Europe are now ground down by their military establishments, and rush headlong to thrust their own necks under the same yoke. A very few years ago both this country and Britain paid their way and steadily reduced their indebtedness; neither does so now. Our sinking fund is neglected, and our kin beyond the sea with ever increasing outlays are in no better case. All Continental nations are perpetually piling up heavier debts; Germany about \$20,000,000 a year, Italy a little more, Austria Hungary more yet, and Russia still more—while for 20 years past the annual deficit of France has been about \$100,000,000. Spain is bankrupt; Portugal, Greece and the South American republics are following the same sad example; and even Japan is signaling her coveted admission to the roll of military States by accumulating a war debt. There is no relief in sight unless disarmament is possible.

At this very time across the Atlantic a handful of statesmen, assembled at the call of the mightiest of Europe's war potentates, are writing a new page in the world's history. That gathering, like ours here, seeks to benefit not only its own narrow circle, but all men for all time. In a strict business view the Congress at The Hague ranks as the most important move ever made; for no waste of power or treasure calls so loudly for remedy as that of war—no reform could be more vital than replacing general havoc and destruction by general exchange of benefits. Commerce is the great missionary of to-day, which, as Garfield told us, "links all mankind in one common brotherhood of mutual dependence and interest." Give to it the wealth now wasted on armaments, put universal arbitration in place of the brute's appeal to force, and the most perplexing economic problem of the time will be solved. That this solution is coming, every day's cable dispatches assure us. That our own loved country is taking an honorably prominent part in bringing it about, is most welcome intelligence to the true patriot. And the hope cannot fail us that the country will soon escape the dangers, not only of warlike entanglements, but of agitation for a clipped coinage and of oppression by the machinations of organized monopoly.

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The Consolidations in the Iron Trade.

Before the American business community there is no question which now commands greater attention than the movement toward consolidation in industrial undertakings. We present elsewhere an address before the Philadelphia Foundrymen's Association by A. B. Farquhar of York, Pa., who glories in being an "independent," and has certainly been conspicuous for many years for convictions, plainly expressed, which have differed strikingly from those of the majority of American manufacturers. Mr. Farquhar deals with "Trade, Trusts and Tariffs."

We may confess frankly that we object most strenuously to having the name of "Trust" with its flavor of odium applied to the recent consolidations, so far at least as those are concerned which are connected with the iron trade. The only justification for the title, in the case of a few of them, is the superabundance of "trust" which is placed in the boards of directors or executive committees. Their powers are so unlimited that they are a serious temptation to honest men, and may easily become a dangerous tool in the hands of tricky speculators. The investing public will soon learn to discriminate against these, and their securities will clearly express in figures the doubts as to the wisdom of such charters.

We must express our surprise that Mr. Farquhar falls into the error of so many reckless newspaper writers and so many scheming demagogues when he refers to the enormous capitalization of the "trusts." The nominal capital of modern consolidations has no more to do with their position than has that of the \$10,000,000 gold mining company whose \$10 shares are selling at extravagant prices when quoted at a penny a share. He refers to the familiar statement that in one month companies with a capital of \$1,000,000,000 were organized in New Jersey. Now it is a fact that practically one-half of the sum is nominal capital only, since one share of common stock in nearly every case went with one share of preferred stock. But this is really a minor matter. The point to be considered is the earning capacity of the properties. If they have loaded themselves down with excessive amounts of cumulative preferred stock their common stocks are practically worthless, and their inability to keep up the dividends on the preferred will force the value of the latter down to its true figure.

At the bottom of the fear of a large capitalization lies the unwarrantable idea that the country owes these consolidations a return on their self made estimate of its value. That fear might be justified if the consolidations possessed a natural or an artificial monopoly, which really none of them do.

It is natural that they should be striving for the one or the other. In the iron trade nearly every one of them is endeavoring to fortify its position by going back to supplies of cheap ore and fuel. In the case of ore this is precarious, to say the least, from a monop-

olist's point of view, because no man can tell what reserves are hidden in the woods and tamarack swamps of Lake Superior. So far as fuel is concerned there is even less cause for anxiety on the part of the public. A monopoly is impossible in that case, and any attempt to extort unduly high prices will make available supplies—possibly not as good nor as cheap—but certainly adequate to permit of profitable utilization at an artificial range of values for product.

Natural monopolies in the iron trade can exist only if handled with the greatest moderation. Artificial monopolies through the control of plant are even more shadowy as a menace to the public. In the staple lines in the iron trade there is not one branch which is controlled by patent ownership. The establishment of works is simply a question of money, and their successful operation merely a matter of securing technical and commercial skill. The managers of any consolidation who ignore these patent facts and who wield oppressively what power they possess are simply wrecking the property in their charge.

It so happens that the consolidations in the iron trade were formed at the time when natural conditions favored a tremendous rise in prices. That rise has taken place in all branches of the trade, whether they be under partial control of the new organizations or whether they be absolutely free from them. In fact, the advance has been greater in some lines of products with which consolidations have absolutely nothing to do.

We are willing to admit that the prevailing circumstances have given the consolidations extraordinary opportunities, which they are now utilizing in the right manner by strengthening their position. Nearly every one of them has been forced to pay high prices for rattle traps which will soon wander into the scrap heap, when the present pressure for product is over. Nearly every one of them is using its large working capital—by the way, another important acquisition through consolidation financiering—for modernizing and improving plant. They must do this in self defense, because antiquated plant would be a fearful element of weakness in the future competition with new comers starting with an entirely new plant.

It is needless to say that the improvements thus being made will enormously strengthen the American iron trade when the real battle for the supremacy in the world's market comes—the campaign of 1897 and 1898 really having been little more than a reconnoissance in force.

Those managing the majority of the consolidations in the iron trade realize that economy in production and in distribution are the principal aims for which they must strive. They are acting also, we are glad to say, upon the conviction that economy and regularity of production depend to a great extent upon gathering a picked, efficient class of workmen, and that they are doing by paying high wages. There is no better way to crowd down labor cost.

Thus far the majority of the consolidations in the iron trade have been managed in a broad spirit. What the inevitable days of hardship and trial will bring remains to be seen. Nor is it quite clear whether and to what extent Wall Street influences may warp the judgment of the leading men and hurt the industry. Nearly all the men at the helm now have grown up in it. They know the dangers and will at any rate not do blindly or ignorantly foolish acts. One point may be regarded as certain, and that is that they will not permit the industry to lapse for years into a state of despair and loss. Its development will be steadier

and more remunerative to all concerned in it, be they stockholders or workmen.

The Soft Coal Smoke Nuisance.

Attention has been freshly called to the soft coal smoke nuisance by the action of an organization of manufacturers in a Western city. They have taken a backward step in protesting against the enforcement of city ordinances designed to abate the production of smoke, urging that no devices have yet been invented that will successfully accomplish this purpose without injury to boilers. The claim is further made that the clouds of smoke pouring from the chimneys of factories are an evidence of prosperity and enterprise, and that manufacturers should not be annoyed by prosecutions for violating city ordinances against the production of smoke, whose enactment has been procured by "unwise newspaper agitation."

Instead of thus planting themselves in the path of progress, and endeavoring to check the efforts being made to secure better combustion of soft coal, these manufacturers would have accomplished a greater service to mankind and perhaps to themselves if they had resolved that they would use their best efforts in trying to secure a successful solution of the smoke problem. Their influence should be cast in the direction of improving present methods of burning soft coal if they desire their city to continue to be an attractive place of residence and desirable for general business. Smoke and soot are extremely objectionable to those engaged in the manufacture and sale of fine merchandise, and their desires should receive some consideration. Many occupations are necessarily and unavoidably productive of dust and grime, but that is no reason why a whole neighborhood should also receive a coating of dirt from a smoky chimney. These manufacturers evidently feel much local pride in their city and are anxious to see its growth continue. Their pride should make them desire to see it growing not only in size and manufacturing importance, but also in cleanliness.

The declaration that no successful appliances have yet been devised to avoid the production of smoke is an assumption which will be combated by a number of manufacturers and users of apparatus for this purpose. It would be invidious to name any, when the evidence of the existence of a considerable number is easily obtained. Devices can be found which are not injurious to boilers and which effect a decided saving in fuel as well as a diminution of smoke. If this were not the case the companies engaged in placing them on the market would not be steadily increasing their business and their prestige. The persistent and impartial enforcement of city ordinances against smoke would in a comparatively limited time make the adoption of better methods of burning soft coal universal among steam users. The slow progress made is mainly due to the inefficiency, if not something worse, of those charged with the important duty of enforcing laws. A fearless and capable smoke inspector in one city, we feel sure, would be able in a few months to set such an example of the successful suppression of smoke that manufacturers in other cities would be exceedingly slow to claim that the problem could not be solved.

Discouraging progress, it must be conceded, is seen in the suppression of smoke from locomotives. A few of the leading railroad companies insist on careful firing when their locomotives are running through the

heart of a city, going so far as to instruct their firemen how to feed fuel so as to greatly diminish the volume of smoke, but outside of cities all restraint is withdrawn, and the locomotives become nuisances to passengers as well as to dwellers along the track. The smoke thus made should be regarded as a stigma on our boasted scientific progress, and railroad managers should not permit the nuisance to exist without an effort to abate it. Every railroad system not actually bankrupt should set aside an annual fund sufficient to employ a competent mechanical engineer to make experiments in either the preparation of fuel or the improvement of locomotives until the problem of smokeless firing is effectually solved. If a small army of experts should thus be put to work on all our railroads, each striving to accomplish this desirable object, more than one successful method would speedily be found.

The daily papers have for several months given considerable space to reports of advances in wages in manufacturing establishments. Recently these reports have become specially noteworthy in stating that the particular advance mentioned is the third or fourth since January. The news gatherers are industrious in collecting these gratifying evidences of prosperity, but it has been impossible for them to secure information relative to more than a part of what has happened in this way. The advance in wages has been general, scarcely an industry having failed to experience the quickening impulse of better times to such an extent as to give the workmen employed some of the benefits. The increased purchasing power of wage earners is thus in its turn contributing to the prosperity of the nation. As long as they are well employed and well paid the good times will continue, even if some one crop should fall short.

The Los Angeles *Herald* deplors the fact that, just as the discovery has been made of hundreds of miles of oil bearing territory in Southern California, the price of wrought pipe "has gone skyward." Instead of costing \$2000, as formerly, a well now demands an outlay of \$7000 to \$12,000. The *Herald* blames "the trust" for this condition of affairs, which it says is causing the development of the oil industry to be brought to a standstill. The blame is misplaced, as everybody connected with the iron trade knows. It rests properly on the shoulders of consumers, who have insisted on buying so generally and so heavily that the capacity of all iron and steel works is not equal to the demand.

The shipment of ore from the lake mines is not proceeding uninterruptedly, as had been hoped. The demand is so great that every link in the transportation chain should be in perfect condition. But now and then a break occurs, and even if the cause appears comparatively insignificant it has considerable effect in checking the movement toward lower lake ports. An instance of this is seen in the recent strike of tug men at Duluth, which continued for a week. The difficulty in handling vessels in the harbor caused many vessels to be turned from there to other ports. Docks were choked with ore, and ore trains stopped running. Several steam shovel mines were closed wholly or in part. Great relief was experienced when the tug men and their employees settled their difficulty and the blockade was raised. With everything running at high pressure it will be almost impossible to make up business which is lost in this way.

The New Scale for Puddling and Finishing Mills.

Last week a conference was held at Detroit, Mich., between committees representing the Republic Iron & Steel Company, the American Steel Hoop Company, the Western Bar Iron Association and the Federal Steel Company on one side and the Amalgamated Association of Iron, Steel and Tin Workers on the other. The committees were in session for several days, and adjourned on Saturday evening, June 10, after giving the men an advance of about 25 per cent. all round. The memorandum of agreement which immediately precedes the scale was not finally adopted, the Amalgamated Association wishing a clause inserted which the manufacturers objected to, and the matter was left open, to be settled at a future date. The differences existing on the memorandum of agreement are trivial and there will be no trouble in arriving at a settlement of this part of the scale. The puddlers have received an advance of \$1 a ton and the puddling scale is based on a 1.4-cent card and the minimum rate is \$5 per ton. The boiling scale as adopted is as follows:

Boiling

Based on actual sales of bar iron by Republic Iron & Steel Company, as per conference agreement.

	Boiling per ton, 2240 pounds
1.4 cent bar iron, card rate.....	\$5.00
1.5 cent bar iron, card rate.....	5.25
1.6 cent bar iron, card rate.....	5.50
1.7 cent bar iron, card rate.....	5.62½
1.8 cent bar iron, card rate.....	5.75
1.9 cent bar iron, card rate.....	5.87½
2 cent bar iron, card rate.....	6.00

It should be noted that the minimum of the card is 1.4 cents, carrying with it a \$5 rate for puddling, which is also minimum, so that if the price of bar iron should go as low as 1 cent a pound puddling would still remain at \$5 a ton.

The foot notes on puddling scale are unchanged until clause 9 is reached.

Clause 9 changed to read as follows: "For wrought iron turnings, worked on cinder bottoms, \$3.25 per ton; the price for working turnings to advance and decline in the same proportion as the boiler's scale."

Clause 10 changed to read as follows: "That busheling one-third iron turnings and two-thirds heavy scrap on cinder bottom to be one-half price paid for boiling. Heavy scrap alone to be twenty (20) cents above the preceding."

No change up to clause 17.

Clause 17 changed to read as follows: "Pipe scrap over four (4) inches in diameter and heavy boiler plate shall be cut from four (4) to six (6) inches in length, all scrap 6 inches and over in diameter to be cut diagonally before charging."

Clause 18 added: "All heavy scrap for busheling to be cut eight (8) inches or less in length before charging."

Clause 19 added: "The output to be paid for on all boiling mills shall not exceed the limited amount allowed for charging."

Clause 20 added: "All clean castings seventy-five (75) pounds and under, when worked alone fifty (50) cents extra per ton shall be paid."

Muck or Puddle Mill.

Clause 1 changed to read as follows: "The price per ton of two thousand two hundred and forty (2240) pounds to be paid for muck rolling on trains of two pairs or sets of rolls or less, shall be one-seventh (1-7) the base price for boiling, but the roller to pay all labor in taking iron from squeezer and delivering upon bank straightened, except bloom boy. In such case, where a bloom boy is used, the manufacturers hereby agree to pay one-half the wages paid to said bloom boy."

No change up to and including clause 5.

Scrapping and Busheling.

Based on card rate of Republic Iron & Steel Company.

	Piles on boards per ton, 2240 pounds.
1.4 cent bar iron.....	\$1.94
1.5 cent bar iron.....	1.99
1.6 cent bar iron.....	2.04
1.7 cent bar iron.....	2.09
1.8 cent bar iron.....	2.12
1.9 cent bar iron.....	2.16
2 cent bar iron.....	2.20

Clause 1 changed to read as follows: "Heating piles or blooms on sand bottom shall be one dollar and eight and three-quarter cents (\$1.08¾) per ton, and advance and decline in same proportion as above scale, heater to pay his own helper."

No change up to clause 7.

Clause 7 changed to read as follows: "Whenever the company desires to pile scrap and deliver same to furnace and help charge thirty (30) per cent. below above prices shall be paid. Whenever the company desires to furnish all help, including run down, pilers and chargers, the

price shall be fifty (50) per cent. below base price as mentioned above."

Clause 8 to read as follows: "When mixed material is worked which is not provided for by the scale, the mean price between the prices of the material used shall be paid. The proportion not to go below one-third."

Clause 9 to be added: "That the weight for a turn's work on sand bottom shall be 10,000 pounds."

Clause 10 added: "That the run down on heating furnace receive one-third (⅓) of what the heater makes. This means piles on boards run to the squeezer. The run down to be paid by the company."

The base price of busheling on sand bottom to be \$2.19 per ton.

Knobbling.

Based on card rate of Republic Iron & Steel Company.

	Scrap per ton, 2464 pounds.	Refined iron per ton, 2464 pounds.
1.4 cent bar iron.....	\$4.75	\$6.19
1.5 cent bar iron.....	4.85	6.32
1.6 cent bar iron.....	4.95	6.46
1.7 cent bar iron.....	5.05	6.59
1.8 cent bar iron.....	5.14	6.72
1.9 cent bar iron.....	5.23	6.85
2 cent bar iron.....	5.33	6.98

No changes in clauses 1 and 2.

Heating Slabs and Shingling.

Based on card rate of Republic Iron & Steel Company.

	Shingling muck and rehammered iron, 2240 pounds.	Shingling charcoal iron, 2464 pounds.	Heating. Also shingling slabs, &c.
1.4 cent bar iron.....	\$0.77	\$0.85.1	\$0.77
1.5 cent bar iron.....	79.1	87	79.1
1.6 cent bar iron.....	80.6	88.7	80.6
1.7 cent bar iron.....	82.1	90.4	82.1
1.8 cent bar iron.....	83.6	92.1	83.6
1.9 cent bar iron.....	85.1	93.8	85.1
2 cent bar iron.....	86.6	95.5	86.6

Bar and 12-inch Mills.

Based on card rate of Republic Iron & Steel Company.

	Bar rolling and heating, 2240 pounds.
1.3 cent bar iron.....	\$0.63.7
1.4 cent bar iron.....	65.1
1.5 cent bar iron.....	66.5
1.6 cent bar iron.....	67.8
1.7 cent bar iron.....	69.1
1.8 cent bar iron.....	70.4
1.9 cent bar iron.....	71.7
2 cent bar iron.....	73

No change to clause 4.

Clause 4 changed to read as follows: "Roughing down on bar and 12-inch mill shall be paid not less than 19.1 cents per ton, with two cents extra per ton where rougher has charge of guides and fixings, to be deducted from the roller's wages and to be paid by the company, and roughing up shall be paid not less than 15.9 cents per ton, to be deducted from catcher's wages and same to be paid by the company, and roughing shall advance and decline in accordance with basis above established."

Clause 9 changed to read: "All crop ends used as billets, 10 per cent. below scale prices shall be paid, and all flats used for top and bottom purposes, 15 per cent. below scale prices shall be paid, but when any part of said crop ends are used in any way in competition with good bars, straight scale prices shall be paid."

Clause 10 to be added: "For all steel flats worked on two-high finishing rolls, the price paid shall be the same as iron on bar mills."

Prices for Mills Making a Specialty of Working Pipe or Skelp from Iron or Steel.

Bar and 12-inch Mill.

Bar and twelve-inch mills when working pipe or skelp at 1.3 cent rate.

	Cents, per ton.
Rolling.....	\$0.57.7
Heating.....	57.7

Clause 3 changed to read: "One man's help shall be furnished by the company on piles of 150 pounds, and an additional man on piles of 250 pounds, to shove under at the rolls on all passes, and for every additional one hundred pounds and over an additional man shall be furnished; the same to apply to heater."

Plate and Tank Mills on Skelp.

	Cents, per ton.
Rolling.....	\$0.60.2
Heating.....	72.9

Guide, 10-inch, Hoop and Cotton Tie Mills.

In first clause the words "a one cent" changed to "one and three-tenths."

Prices for rounds and squares to remain the same.

	Ovals.		
10.00	10.00	10.00	\$4.20
9.00	9.00	9.00	3.60
8.00	8.00	8.00	3.00
6.25	6.25	6.25	2.46
3.72	3.72	3.72	4.34
7.00	7.00	7.00	4.00
5.00	5.00	5.00	3.50
4.15	4.15	4.15	3.00
2.88	2.88	2.88	2.60
5.96	5.96	5.96	2.40
4.94	4.94	4.94	2.05

Half Ovals.

$\frac{1}{2}$ and $\frac{3}{4}$ x $\frac{1}{4}$	\$3.80	$\frac{3}{4}$ x $\frac{1}{4}$	\$4.34
$\frac{1}{2}$ and $\frac{1}{2}$ x $\frac{1}{2}$	7.00	$\frac{3}{4}$ x $\frac{1}{2}$	2.50
$\frac{3}{4}$ and $\frac{1}{2}$ x $\frac{3}{4}$	5.00	$\frac{3}{4}$ x $\frac{3}{4}$	3.52
$\frac{3}{4}$ x $\frac{1}{2}$	5.96	$\frac{3}{4}$ x $\frac{3}{4}$	2.78
$\frac{3}{4}$ x $\frac{3}{4}$	5.00	$\frac{3}{4}$ x $\frac{3}{4}$ and up.....	2.05
$\frac{3}{4}$ x $\frac{1}{4}$	3.00		

Prices for half rounds remain the same.

Nut Iron.

$\frac{1}{2}$ x $\frac{1}{4}$ to $\frac{1}{2}$	\$10.00	$\frac{1}{2}$ x $\frac{1}{2}$ and up.....	\$3.60
$\frac{1}{2}$ x $\frac{1}{2}$	8.80	$\frac{1}{2}$ x $\frac{1}{2}$	3.30
$\frac{1}{2}$ and $\frac{1}{2}$	5.00	$\frac{1}{2}$ x $\frac{1}{2}$	3.20
$\frac{1}{2}$ x $\frac{1}{2}$	9.60	$\frac{1}{2}$ x $\frac{1}{2}$	3.10
$\frac{1}{2}$ x $\frac{1}{2}$	5.60	$\frac{1}{2}$ x $\frac{1}{2}$	2.98
$\frac{1}{2}$ x $\frac{1}{2}$	9.20	$\frac{1}{2}$ x $\frac{1}{2}$	2.68
$\frac{1}{2}$ x $\frac{1}{2}$	5.40	$\frac{1}{2}$ x $\frac{1}{2}$	2.68
$\frac{1}{2}$ x $\frac{1}{2}$	9.00	$\frac{1}{2}$ x $\frac{1}{2}$	2.56
$\frac{1}{2}$ x $\frac{1}{2}$	5.00	$\frac{1}{2}$ x $\frac{1}{2}$	2.46
$\frac{1}{2}$ x $\frac{1}{2}$	8.80	$\frac{1}{2}$ x $\frac{1}{2}$	2.36
$\frac{1}{2}$ x $\frac{1}{2}$	4.60	$\frac{1}{2}$ x $\frac{1}{2}$	2.36
$\frac{1}{2}$ x $\frac{1}{2}$	8.80	$\frac{1}{2}$ x $\frac{1}{2}$	2.26
$\frac{1}{2}$ x $\frac{1}{2}$	4.20	$\frac{1}{2}$ x $\frac{1}{2}$	2.14
$\frac{1}{2}$ x $\frac{1}{2}$	4.00	$\frac{1}{2}$ x $\frac{1}{2}$	2.05
$\frac{1}{2}$ x $\frac{1}{2}$	3.80		

Prices for remainder of guide, 10-inch, hoop and cotton mill scales remain as they are at present.

Notes.

Last clause of note 2, beginning "but when so using muck, &c.," to be left out.

In clause 7 instead of the words "a third" to read "an extra rougher."

Clause 13 to be added: "Twenty-five (25) per cent. to be paid on all the above scale."

Addenda.

Clause 4 to be added: "That on bar, twelve-inch and guide mills the second furnace shall not charge later than one hour after first furnace, and that first furnace shall cease charging at one (1:00) o'clock p.m. on Saturday."

OBITUARY.

SAMUEL MONTGOMERY.

Samuel Montgomery, who died on June 10 at his home, 104 East Fifty-fifth street, New York City, at the age of 76 years, was formerly a prominent iron and steel merchant in this city. He was born in Ireland, and came to this country when a young man.

HENRY I. HOYT.

Henry I. Hoyt, for many years president of the Norwalk Iron Works, Norwalk, Conn., died on June 3 at his home in South Norwalk, aged 85 years.

PERSONAL.

Charles F. Thompson, secretary and treasurer of the Lane & Bodley Company, Cincinnati, Ohio, has resigned his position, to take effect July 1.

Charles G. Phillips has been appointed general superintendent of the Diamond State Steel Company, at Wilmington, Del.

Robert P. Linderman has been elected president, E. M. McIlvain vice-president and R. W. Davenport general superintendent of the Bethlehem Iron Company.

John McLauchlan, for many years Western manager of the Andrews Bros. Company, the Finished Steel Company and the Youngstown Iron & Steel Roofing Company, has been placed in charge of the credit department of the Republic Iron & Steel Company, Stock Exchange Building, Chicago.

Desmond Fitzgerald of Boston, president of the American Society of Civil Engineers, and a department engineer of the Metropolitan Water Board of Massachusetts, has been appointed chief engineer to assist the State commission of Illinois in their inspection of the Chicago Drainage Canal, which will be completed this fall. He is an expert hydraulic engineer.

A. J. Cassatt of Philadelphia has been elected president of the Pennsylvania Railroad Company, in the place of the late Frank Thomson.

Paul Roux of Roux Frères & Cie., engineers, of Paris, sailed on Friday last for Europe after a few weeks' sojourn in this country, where he visited the principal machine shops. M. Roux purchased over \$100,000 worth of heavy machine tools.

R. L. Laughrey, chief clerk in the office of the McClure Coke Company, has been appointed traveling auditor of the H. C. Frick Coke Company, to succeed James Amend, who has been made private secretary to O. W. Kennedy, superintendent.

James H. Nutt, secretary of the Manufacturers' Association, at Youngstown, Ohio, has been prostrated by the

heat, which, coupled with nervous exhaustion, has made his condition very serious.

A. W. Ebeling, for many years connected with the Otto Gas Engine Works, has resigned his position as secretary of the above company. He proposes to take a vacation this summer before assuming fresh business burdens.

George Westinghouse of Pittsburgh, who is in Europe, sails for home on Saturday, June 17.

Capt. William G. Randle, commander of the American Line steamship "St. Louis," has resigned in order to become vice-president and general manager of the New York Shipbuilding Company.

Samuel A. Kennedy, superintendent of the Isabella Furnace Company, at Etna, Pa., has resigned his position to accept the position of superintendent of the Iroquois Furnace Company, at Chicago, Ill.

The Views of President Buffington.

President E. J. Buffington of the Illinois Steel Company has been interviewed by a Chicago daily paper and talked very interestingly, as follows:

Foreign manufacturers are coming in here nearly every day. There is no question but the iron and steel men in England and Germany are very much alarmed at the tremendous exports from this country last year, and they are exceedingly anxious to learn if we are going to continue to push the export business, and also to find out if our ore supply will last. They are also somewhat interested in our methods of business and manufacture and in our machinery, but not nearly so much as in the probability of our remaining in the field in their countries.

Only to-day two gentlemen representing iron and steel interests in Frankfort, Germany, were in to see me and inquired as to the probability of the American manufacturers continuing to push for business in the European markets. I do not wonder that they are worried. Last year while business was so dull in this country the Southern furnaces were kept busy almost wholly by export business and the foreigners found that they were entirely unable to compete with the American product, notwithstanding that their labor was cheaper.

This year, however, the demand for raw material is so great in this country that there is little available for export. So the producers of pig iron and steel billets abroad need not fear us so much just at present. It is keeping the furnaces all over the country fully occupied filling the demand at home, and I do not think much raw material or ship plates are going abroad. But the foreign orders for finished products in the iron and steel line are enormous and must cause the manufacturers of specialties in England and Germany considerable worry. Every day we read of great orders for machinery of all kinds being received from abroad. Only a day or two ago I noticed an immense order being received by the Baltimore Locomotive Company for locomotives to go to England. This is true of every kind of machinery and every specialty made from iron and steel and must make a vast difference in the business of manufacturers of these things abroad. But all this export business in finished product creates such a great demand at home for pig iron and steel that the exports of pig iron and billets will probably be much less this year than last. It is the producers of raw material abroad that are particularly alarmed at present because of the immense shipments last year, and it is this class of manufacturers who are coming over to investigate.

One point that they all inquire most earnestly about is the condition of our ore supply. Somebody evidently has been telling them that we have been forcing production so rapidly that we are exhausting the supply of ore, and they are deluding themselves over there that our competition will be short lived. When they press us on that point we just send them out over the range and they come back looking pretty blue.

It is evident from the most casual investigation that we have scarcely scratched the surface and that there is little prospect of a failure of an abundant supply of ore. However, we can honestly give them some comfort this year regarding our export business, because, as I have said, we will have little or no raw material to export.

That comfort, however, is short lived, because it is certain we will increase production as long as we can find a market, and it will not be long before we will be producing enough raw material to supply our home demand and fill all the orders we can get abroad.

The iron and steel business never was so promising in this country as it is now. I cannot see how anything can possibly happen to prevent the present rushing business from lasting through the year. Nor can I see how there can fail to be an absolute shortage of pig iron and steel before the year is out.

Pig Iron Production Increased.

A Further Decline in Stocks.

Gradually the preparations to increase output are telling, and the May production was larger, although the general fact is noticed that many furnaces are not doing quite as well as expected. Then, too, a considerable number have been forced to go out for repairs.

The current month, however, promises to add a notable number of stacks to the productive list which have long been idle, while work is going on in connection with other plants which will bring them into line in July and August.

The weekly capacity of the furnaces in blast on June 1 compares as follows with that of preceding periods:

	Furnaces in blast.	Capacity per week. Gross tons.
June 1, 1899.....	230	250,062
May 1.....	217	250,095
April 1.....	206	245,746
March 1.....	192	228,195
February 1.....	195	237,639
January 1.....	200	243,516
December 1, 1898.....	196	235,528
November 1.....	196	228,935
October 1.....	192	215,635
September 1.....	186	213,043
August 1.....	187	206,777
July 1.....	185	216,311
June 1.....	190	225,396
May 1.....	194	234,163
April 1.....	194	233,599
March 1.....	193	234,430
February 1.....	184	228,328
January 1.....	189	226,608
December 1, 1897.....	191	226,024
November 1.....	183	213,159
October 1.....	171	200,122
September 1.....	161	185,508
August 1.....	152	185,878
July 1.....	145	164,084
June 1.....	146	168,380
May 1.....	146	170,528
April 1.....	158	173,279
March 1.....	156	169,956

The status of the charcoal furnaces was as follows:

Charcoal Furnaces in Blast June 1, 1899.

Location of furnaces.	Total No. of stacks.	No. in blast.	Capacity per week.	No. out of blast.	Capacity per week.
New England.....	11	3	240	8	710
New York.....	2	2	214	0	0
Pennsylvania.....	13	2	110	11	550
Maryland.....	4	0	0	4	569
Virginia.....	4	0	0	4	437
Ohio.....	7	1	70	6	420
Kentucky.....	3	0	0	3	200
Tennessee.....	9	1	499	8	2,240
Georgia.....	3	0	0	3	670
Alabama.....	12	2	633	10	2,250
Michigan, Missouri and Wisconsin.....	18	5	3,127	13	4,585
Texas.....	4	0	0	4	573
Utah.....	1	0	0	1	175
Oregon.....	1	0	0	1	275
Totals.....	92	18	4,943	76	13,954

As compared with previous months the record of active charcoal furnaces stands as follows:

	Furnaces in blast.	Capacity per week.
June 1, 1899.....	16	4,943
May 1.....	20	4,846
April 1.....	17	4,777
March 1.....	16	4,590
February 1.....	17	4,967
January 1.....	20	5,036
December 1, 1898.....	18	5,018
November 1.....	20	5,947
October 1.....	20	5,732
September 1.....	21	6,293
August 1.....	22	6,459
July 1.....	19	5,647
June 1.....	20	6,762
May 1.....	18	6,571
April 1.....	16	5,716
March 1.....	16	5,470
February 1.....	14	4,734
January 1, 1898.....	16	5,442
December 1, 1897.....	19	5,061
November 1.....	19	4,656
October 1.....	20	4,696
September 1.....	21	4,556
August 1.....	20	4,008
July 1.....	14	2,894
June 1.....	15	3,321
May 1.....	13	3,729
April 1.....	16	5,368
March 1.....	18	5,425

Among the charcoal furnaces started we may note Bloom in the Hanging Rock region, while among those which were out temporarily in May were Peninsular in Michigan, Sligo in Missouri and the Old Alcalde in Texas.

The status of the coke and anthracite furnaces was as follows:

Coke and Anthracite Furnaces in Blast June 1.

Location of furnaces.	Total No. of stacks.	No. in blast.	Capacity per week.	No. out of blast.	Capacity per week.
New York.....	11	1	1,500	10	9,129
New Jersey.....	2	2	1,873	0	0
Spiegel.....	3	3	462	0	0
Pennsylvania:					
Lehigh Valley.....	26	14	7,702	12	5,390
Spiegel.....	1	0	0	1	90
Schuylkill Valley.....	12	9	5,657	3	2,367
Upper Susquehanna Valley.....	4	3	3,108	1	600
Lower Susquehanna Valley.....	10	5	4,978	5	1,820
Lebanon Valley.....	12	11	7,532	1	534
Pittsburgh District.....	23	27	59,444	1	1,865
Spiegel.....	2	2	2,320	0	0
Shenango Valley.....	15	15	20,398	2	1,903
Western Pennsylvania.....	20	11	13,749	9	3,920
Spiegel.....	1	1	709	0	0
Maryland.....	5	2	3,765	3	3,750
Wheeling District.....	9	9	17,121	0	0
Ohio:					
Mahoning Valley.....	13	11	17,837	2	1,790
Central and Northern.....	9	9	12,634	0	0
Hocking Valley.....	2	1	316	1	550
Hanging Rock.....	12	6	2,357	6	1,747
Illinois.....	16	14	25,102	2	1,750
Spiegel.....	1	1	816	0	0
Minnesota.....	1	0	0	1	629
Wisconsin.....	4	2	1,920	2	1,372
Missouri.....	2	1	950	1	600
Colorado.....	3	2	2,058	1	700
The South:					
Virginia.....	22	9	6,059	13	7,720
Kentucky.....	5	5	2,271	0	0
Alabama.....	30	21	21,300	9	7,150
Tennessee.....	11	5	6,211	3	2,000
Georgia.....	2	0	0	2	990
North Carolina.....	2	1	650	1	400
Totals.....	296	204	251,119	92	58,856

In comparison with previous months the record of the coke and anthracite furnaces stands as follows in gross tons:

	Number in blast.	Capacity per week.
June 1, 1899.....	304	251,119
May 1.....	197	245,249
April 1.....	188	240,969
March 1.....	175	223,665
February 1.....	178	232,073
January 1, 1899.....	180	237,490
December 1, 1898.....	177	229,510
November 1.....	176	222,968
October 1.....	172	219,903
September 1.....	165	206,750
August 1.....	165	200,318
July 1.....	166	210,604
June 1.....	170	218,636
May 1.....	176	227,522
April 1.....	178	227,623
March 1.....	177	228,960
February 1.....	170	223,604
January 1, 1898.....	172	221,106
December 1, 1897.....	172	220,962
November 1.....	164	206,593
October 1.....	151	195,493
September 1.....	140	180,951
August 1.....	132	161,375
July 1.....	131	161,170
June 1.....	131	165,059
May 1.....	133	166,799
April 1.....	137	167,911
March 1.....	138	164,561

Work was started in May by quite a number of plants, among them being Tipton in the Schuylkill Valley; Ella, Fannie and the new Mabel in the Shenango Valley; Valentine and one Cambria in Western Pennsylvania, Steubenville in the Wheeling district, Anna in the Mahoning Valley, one Sloss and one Pioneer in Alabama and one South Pittsburgh furnace of the Tennessee Company.

On the other hand quite a number of stacks have blown out for repairs. This includes the Buffalo and one of the Niagara furnaces in New York, one Crane and one Sacon in the Lehigh Valley, one Maryland Steel, Belfont in the Hanging Rock region and Mayville in Wisconsin.

Furnace Stocks.

The position of furnace stocks, sold and unsold, as reported to us, was as follows on June 1, the same furnaces being represented as in former months. This does not include the holdings of the steel works producing their own iron:

Stocks.	Jan. 1.	Feb. 1.	Mar. 1.	April 1.	May 1.	June 1.
Anthracite and coke.....	402,290	365,311	328,987	239,907	205,125	167,587
Charcoal.....	104,315	97,593	98,094	82,056	79,002	65,643
Totals.....	506,575	462,904	427,081	311,963	284,127	233,235

Warrant Stocks.

We are indebted to the American Pig Iron Storage Warrant Company for the following statement of stocks of warrant iron:

Stocks.	Jan. 1.	Feb. 1.	Mar. 1.	Apr. 1.	May 1.	June 1.
Coke and Anthracite.....	113,100	100,700	95,000	82,700	60,700	42,900
Charcoal.....	37,700	34,500	31,300	27,000	25,800	20,400
Totals.....	150,800	135,200	126,300	109,700	86,500	63,300

In other words the total reported stocks figure out a little more than one week's consumption.

MANUFACTURING.

Iron and Steel.

The La Belle Iron Works of Wheeling, W. Va., will continue to operate their plate and skelp mills and cut nail machines. The black plate mills of the company have been sold to the American Tin Plate Company.

On June 12 application will be made to the Court of Common Pleas of Schuylkill County, Pa., to have Receiver Wm. Atkins of the Pottsville Iron & Steel Company sell all property, franchises, &c., of that company at auction on July 5 at the company's office in Pottsville, Pa.

In 1898 the Carnegie Steel Company, Limited, of Pittsburgh made 2,063,466 gross tons of pig iron, ferromanganese and other furnace products; 2,171,225 gross tons of steel ingots, which were manufactured into finished product in the various mills of the company. In addition to the above, finished castings to the amount of 55,154 tons were turned out by the different foundries owned by the Carnegie Steel Company.

In May the Youngstown works of the National Steel Company, at Youngstown, Ohio, turned out 43,850 tons of billets and sheet bars. Of this product 11,484 tons were large steel billets, 14,360 tons small billets, and 18,006 tons sheet bars. The converting mills made 4713 heats and turned out 48,074 tons.

The tonnage men employed in the Painter works of the American Steel Hoop Company of Pittsburgh have been given a voluntary advance in wages of 10 per cent.

The black plate mills of the Laughlin Nail Company, at Martin's Ferry, Ohio, which were taken over by the American Tin Plate Company, will in the future be known as "Laughlin Plant" of the latter concern. The plate train and the cut nail and spike machines of the Laughlin Nail Company were not included in the purchase and will be operated by that concern.

The Cumberland Steel & Tin Plate Company of Cumberland, Md., will add an acid open hearth steel furnace to their plant.

The Reeves Iron Company of Canal Dover, Ohio, who sold their black plate mills to the American Tin Plate Company, will continue to operate their merchant and sheet departments. The sheet plant will be enlarged to 10 mills.

Etna Furnace, at Ironton, Ohio, was blown in last week after a long idleness.

It is reported that Charles H. Schaffer of Marquette Mich., proposes to put in operation the Carp Furnace, which has been idle for a number of years. It is a charcoal furnace.

A press dispatch from Port Townsend, Wash., states that the plant of the Port Townsend Wire Nail Works is to be removed to Seattle, and a force of men is engaged in tearing down buildings and taking the machinery apart for shipment. This plant, after going through a lengthy litigation, recently passed into the hands of W. D. Hofius & Co. of Seattle, who after thorough examination find that the nail machines are out of date and will dispose of them as old iron. W. D. Hofius & Co. also purchased the iron foundry, which is in first-class condition, and it is their intention to start it in operation inside of two months. The plant is complete for all kinds of work, but a specialty will be made of castings. The principal output will be sash weights.

An erroneous report has been published that the four mills of the American Steel & Wire Company at Joliet, Ill., were shut down on the 9th inst. to enable large stocks of wire nails and wire to be reduced. These mills are still in operation. In a week or two they may be closed for a short time to take inventory, but only for that purpose. Usually at this time of the year the wire trade is quiet and the mills are either closed or run at part capacity, but the demand has continued much in excess of expectations.

The Thomas Furnace Company, Duluth, Minn., have leased for three years the docks and 120 coke ovens, formerly the property of the Lehigh Coal & Iron Company at West Superior. Only 70 of the ovens are in repair, but the rest will be put into shape at once and 100 more will be constructed. The plant will furnish abundant coke for the operation of the furnace. The Thomas Company, it is stated, have found a market for the entire product in the West and will ship no metal East.

The rod mill of the American Steel & Wire Company at Anderson, Ind., has been shut down on account of an accident to one of the engines. Several weeks will be required to make repairs, but as a good stock of rods is on hand the finishing departments of the works will not be affected.

Last Friday a strike took place in the tinning department of the Demmler works of the American Tin Plate Company, at Demmler, Pa., near Pittsburgh. The strike was caused by the dismissal of some old employees. The strikers are members of the International Tin Workers' Association, and appointed a committee to wait on the concern with a view of arranging a settlement of the trouble.

The North Branch Steel Company will resume operations at their plate mill at Danville, Pa., which has been idle for several years, and will employ 100 men.

The Kittanning Iron Company, Kittanning, Pa., will start their rolling mill on double turn about July 1, or as soon as they can get the mill in repair.

The puddling furnaces of the Harrisburg Nail Works, Harrisburg, Pa., will soon be put in condition to make muck bars, after an idleness of some years.

The Tyrone Iron Company, Tyrone, Pa., have notified their employees of an advance in wages of 10 per cent., to take effect July 1. This concern are putting in a 500 horse-power boiler plant of Cahall boilers and new shears, which will equip their plant thoroughly for the manufacture of high grade knobbed charcoal boiler tube skelp, rolled on plain and grooved rolls as desired by the customer.

The Eleanor Iron Company, Tyrone, Pa., are operating their plant night and day, manufacturing muck bar. On June 1 puddling was advanced by this concern to \$3.30, and another advance will take place June 10, when the price will be \$3.50.

The plant of the Shelby Steel Tube Company, at Greenville, Pa., has been equipped with a view of manufacturing tubing up to eight inches in outside diameter for hydraulic work, locomotive boiler flues and marine work. A large order for the navy is being filled at this plant.

David Lamond, contracting engineer, Ferguson Building, Pittsburgh, has received a contract to build two C. H. Foote stoves for the Low Moor Iron Company of Low Moor, Va. These stoves will be 18 x 62 feet in size, and will be built as soon as possible. Mr. Lamond also has a contract for relining the furnace. The fire brick will be furnished by the Clinton Fire Brick Company of Ashland, Ky., and the iron work will be done by the Meehan Boiler & Construction Company of Lowellville, Ohio.

The Pennsylvania Bolt & Nut Company, Lebanon, Pa., have made a further advance in puddling, bringing the price up to \$3.50 per ton.

C. R. Baird & Co. of Philadelphia have leased the Iron Gate Furnace at Iron Gate, Va., which will be blown in on Wednesday of the current week.

The Jansen Iron Company, Columbia, Pa., manufacturers of bar iron and steel, have given their employees a second advance in wages this year.

The Central Iron & Steel Company, at Harrisburg, Pa., will advance the wages of their puddlers at the South Harrisburg and Herr Street mills from \$3 to \$3.50 per ton, taking effect about June 15. The advance affects about 150 men. The new plate mill under erection by this concern will probably be running about the middle of July.

The Diamond State Steel Company of Wilmington, Del., are about ready to begin the erection of an open hearth steel plant, consisting of acid and basic furnaces, which will furnish a capacity of 400 tons per day. There will also be built a blooming mill and a universal plate mill, to be built on modern lines with full hydraulic and electrical equipment, Robert Aiken of Pittsburgh being consulting engineer. All of the contracts have not yet been placed, as it has been a question of time of delivery of certain machinery. It is expected, however, to have the improvements ready for operation by the beginning of 1900. The present plant is running night and day with a tonnage greater than ever produced at the works. Upward of 1200 men are being employed.

The Central Iron & Steel Company of Harrisburg, Pa., are remodeling what is known as the old Central Mill, by placing a new train of rolls, adding tables, placing straightening rolls and building new furnaces. These improvements, which will make it a model mill, will add to the product several hundred tons per week. A number of minor improvements are being made to other parts of the plant, so that by the middle of July the total tonnage of plates of the Central Iron & Steel Company will be over 3000 tons per week.

The Watts property at Middlesborough, Ky., has passed back to the control of the original owners.

The plant of the Elmira Iron & Steel Company at Elmira, N. Y., has been purchased by C. R. Baird & Co. of Philadelphia. The iron department contains 17 puddling furnaces and six trains of rolls. The steel department contains two basic open hearth furnaces and a universal plate mill. The new owners have already commenced work, and the entire plant will be in full operation within the next three weeks. We are informed that a company to be known as the Elmira Steel Company will be organized within a few days and that extensive improvements and additions will be made as promptly as possible. Two more large modern open hearth furnaces and a large tin plate plant will be installed in the near future. The resumption of this large plant, which will give employment to 1000 men, furnishes additional evidence of the prosperous condition of the iron trade in this country.

L. & R. Wister & Co. of Philadelphia expect to start the Bristol Rolling Mill at Bristol, Pa., in the course of a few days, and will manufacture muck bars, merchant bars, &c. This mill has been idle several years, but will probably be in operation at the end of the current month. A company are being organized to operate the works and will be known as the Bristol Iron & Steel Company.

C. R. Baird & Co. of Philadelphia are to start up the Fullerton Rolling Mill at Fullerton, Pa., on Wednesday of this week. The business will be carried on under the name of Fullerton Rolling Mill Company and their office will be in Bullitt Building, Philadelphia.

The Virginia Iron, Coal & Coke Company are building new hot blast stoves in connection with the Crozier Furnaces and are increasing the capacity of the furnace at Bristol, Tenn.

Douglass Furnace, at Sharpsville, Pa., recently purchased by the Shenango Furnace Company of Pittsburgh, has been put in blast and is making about 200 tons of Bessemer iron per day.

The puddling department of the Sharon works of the American Steel Hoop Company, at Sharon, Pa., which has been idle for a long time, will be started up as soon as repairs can be made, making muck bar for the puddling mills.

At the annual stockholders' meeting of the Cumberland Steel & Tin Plate Company, Cumberland, Md., held June 1, the following officers were elected: President, H. H. Dickey, formerly the secretary of the company; vice-president, W. M. Gordon; treasurer, Edward Bailey, now president of the Harrisburg National Bank, and secretary, William C. Dickey, now located in the New York office of the Cambria Steel Company.

The Doyle Furnace Company of Denver, Col., have been incorporated, with a capital stock of \$1,000,000, by C. F. Doyle, Howard Waterman and Cyrus E. Mead.

Machinery.

James Bonar & Co., Carnegie Building, Pittsburgh, have received an order from the Lebanon Iron Company, Lebanon, Pa., for an equipment of Sweets steam separators for the Lebanon furnace, consisting of one 15-inch, one 10-inch, one 6-inch, one 5-inch and one 3-inch. They are also building two 500 horse-power Pittsburgh tubular feed water heaters for the Talladega Furnace Company of Talladega, Ala.

The National Steel Company have recently installed a large amount of electrical equipment in their Mingo Junction Works, at Mingo Junction, Ohio. This equipment consists of two 150-kilowatt generators, directly connected with two engines of 225 horse-power each. The electricity supplies light to the mills and offices and also operates nine large traveling cranes ranging from 10 to 30 tons capacity each.

A new boiler works will be built at Girard, Ohio. Frank Clipp, formerly connected with the Enterprise Boiler Company, at Youngstown, Ohio, is identified with the new concern. Application for a charter of incorporation has been made.

The Fischer Foundry & Machine Company of the South Side, Pittsburgh, have received an order from the Pittsburgh Steel Foundry Company, who are erecting a plant at Glassport, Pa., for 500 horse-power engines.

The Arthur Fritsch Foundry & Machine Company of St. Louis, Mo., have been incorporated, with a capital of \$14,000, by A. Fritsch, Lydia Fritsch and C. Weber.

At the recent stockholders' meeting of the Vulcan Iron Works, South Wilkes-Barre, Pa., E. H. Jones was elected president and manager and Fred. Smith treasurer.

The Sturtevant Mfg. Company of 76 Montgomery street, Jersey City, N. J., have been incorporated for the manufacture of machinery for stitching books, with a capital of \$100,000. The incorporators are Leroy S. Lewis, Hartford, Conn.; Samuel S. Brouwer, Jersey City; A. A. Sturtevant, Hartland, Vt.

The business of the Saginaw Mfg. Company of Saginaw, Mich., has increased so much of late that they have been compelled to almost double their power plant. We are informed by them that their plant will be shut down from June 23 to July 5, for the purpose of installing a new engine, during which time no orders can be executed, except from the stock which is in their warehouse at that time.

The Albany Boiler Works, Albany, N. Y., filed a certificate of increase of capital stock from \$50,000 to \$100,000 and also an increase in the number of its directors from three to five. The total amount of debts and liabilities is \$20,000.

The Turner Engineering Company of Bucyrus, Ohio, will erect at once a complete plant of Turner boilers for the Marion Steam Shovel Company, including a large self-supporting steel chimney, brick lined, after special designs.

The Westinghouse Electric & Mfg. Company of Pittsburgh have received a contract from the San Gabriel Electric Company, at Azusa, Cal., for an additional rotary converter of 550 horse-power. Current at 18,500 volts will be supplied to the street railroads of Los Angeles. Another contract has been received from the Big Creek Power Company of Santa Cruz, Cal., for a 250 horse-power generator and four raising and lowering transformers of 400 horse-power. The Westinghouse Electric & Mfg. Company have also been given the contract for a large increase in the equipment of the Hartford Electric Light Company of Hartford, Conn. Two generators of 1000 horse-power each and two large exciters, with traveling crane for handling the machinery, will be sent East on this order. The plant will be one of the largest and most modern in New England. The Jackson Milling Company of Centralia, Wis., have contracted for a large power plant on the Wisconsin River, at Steven's Point. One 650 horse-power two-phase generator, together with transformers and other electrical apparatus, will be installed.

The Western Iron Works, at Butte, Mont., were burned on the 6th inst. Valuable patterns were destroyed and the loss is placed at \$75,000 to \$80,000.

The Baker Mfg. Company, Evansville, Wis., manufacturers of wind mills and pumps, are erecting a foundry 70 x 133 feet.

The King Machine Company have opened up a factory at Moline, Ill., to build gasoline engines, as well as to engage in job and repair work.

The J. G. Wagner Company, operating the Milwaukee Bridge & Iron Works, at Milwaukee, Wis., suffered a loss of about \$20,000 in the burning of their foundry on the morning of the 8th inst. Fortunately the pattern shop was saved or the loss would have been much more serious.

Owing to the increased demand for special machinery and machine work in general during the past few months and the prospects for future increased business, the Torrington Mfg. Company of Torrington, Conn., are compelled to increase their facilities for output. The company will shortly build an addition 30 x 50 on to its machine room to meet their increasing requirements.

The Saco Pettee Machine Company are to erect an additional building at Newton Upper Falls, Mass., adjoining the present plant. The addition is to be of brick, three stories high and 310 x 60 feet.

The Lodge & Shipley Machine Tool Company report that a still further increase in their manufacturing facilities has been inaugurated, the demand for their specialty lathes being most excellent, the increase for domestic use being especially noticeable. A number of large shipments have recently been made and their working force has been enlarged to meet the increased demand, working ten hours a day.

A meeting of the stockholders of the Standard Underground Cable Company will be held in Pittsburgh, Saturday, June 24, for the purpose of voting for or against an increase in the capital stock of the company.

A new company, consisting of R. W. Davies of Warren, Ohio; Jas. V. Rose of Sharon, Pa., and Fred. Russell of Pittsburgh, have been organized to operate the shops of the Sharpsville Foundry & Machine Company, at Sharpsville, Pa. The name of the new concern is the Sharpsville Foundry Company, Limited, and they will manufacture the Davies pig casting machine.

The Keystone Iron Works, Ft. Madison, Iowa, builders of the Lamos gas and gasoline engines, have made recent shipments of their engines to C. C. Mitchell, Dallas City, Ill.; H. W. Foster, Aberdeen, S. Dak.; Jos. Fry, Weaver, Iowa, and Lee Alexander, Cahokia, Mo.

The Welmer Machine Works Company of Lebanon, Pa., are building for Germany eight of their 200 cubic feet patent cinder cars, for Russia two cars and for England five cars. They report that inquiries for their cinder cars and blowing engines are being made daily and that they expect to secure a number of orders.

The assignee of A. J. Boyce, at East Liverpool, Ohio, has sold the Industrial Foundry & Machine Works at that place to a syndicate of manufacturing potters for \$18,675.50. The same syndicate have an option on the Patterson Foundry & Machine Works, in East Liverpool, and it is expected that both plants will be put in operation in a short time in the manufacture of potters' machinery.

Bridges.

A charter has been issued to the Pottstown Bridge Company of Pottstown and Philadelphia. The capital is \$300,000.

Hardware.

The Ellwood Ivins Tube Company of Oak Lane Station, Philadelphia, are running their works on seamless tubing 24 hours per day, double shift. They are not in the combination and Hermann Boker & Co., 101 Duane street, New York, are their sole selling agents.

Frank Mossberg Company have just removed their plant from Providence, R. I., to Attleboro, Mass., where they will have materially enlarged facilities for taking care of their increased business in bicycle sundries. It is their intention to add several new articles to their line for next season's business, among which will be an entirely new bell, bicycle pump, bicycle lock and bicycle brake. They advise us that although the season on their chime bell is now well advanced orders continue to come from all parts of the country. During the last few weeks, they state, several valuable improvements have been made in their bells and all goods now shipped are provided with these features. In addition to the above business they are also fitting up a machine shop with modern appliances for light and fine work. A department for making metal punchings and stampings of every description is also part of their equipment.

The Bridgeport Chain Company, Bridgeport Conn., manufacturers of a line of plumbers', sash and chains for other purposes, announce that W. B. Lashar, who has been connected with them for a number of years, has been elected secretary, succeeding the late Charles H. Hill; also that Gregory S. Bryan has recently joined their forces and will have charge of the manufacturing department, while Mr. Lashar will have general management of sales. They advise us that American and foreign markets appreciate the strength of their weldless chain and report that they have recently received large orders from prominent houses, both here and abroad.

August Tuereffs and Martin Shewice of Alexandria, Ind., are reported to have purchased a cutlery plant at Canton, Ohio, which they will remove to Alexandria later in the year. They will manufacture table knives, forks, spoons, &c.

Shamokin Lock & Novelty Mfg. Company, Shamokin, Pa., have purchased the plants located in that city which have been making the Eureka hasp lock and the Novelty hasp lock and will continue the manufacture of these goods with other hardware specialties. The officers of the company are M. A. Kearney, president; W. E. Kearney, secretary and treasurer, and W. E. Delbert, manager.

The Haydenville Company, Haydenville, Mass., and 150 Nassau street, New York, though crowded with orders from jobbers of plumbers' and steam fitters' brass goods all over the country and extremely busy, point to the fact that the capacity of their works is such that the trade has suffered little if any delay in shipment of orders. They state that the quality and workmanship of their goods are such that many plumbers and steam fitters make persistent call for them.

Miscellaneous.

Frank D. Pope of the Park Building, Pittsburgh, general sales agent for the Savage Fire Brick Company, has secured a contract for upward of 100,000 silica brick for the new open hearth steel plant to be erected by the Burgees Steel & Iron Company, at Portsmouth, Ohio. The plant will probably contain ten furnaces.

The nail keg factory of the Edwin Bell & Sons Company, on the South Side, Pittsburgh, which was destroyed by fire last week, will be rebuilt. The company are carrying on operations in one of the buildings which was not destroyed.

At Pittsburgh the exceptions to the report of the referee in the equity suit of Gilbert Rafferty against Charles Donnelly have been dismissed and the report of the referee confirmed. The plaintiff sought to obtain an accounting for over \$50,000, alleging a misappropriation of funds of the McClure Coke Company. The referee found that he did not prove his averment and the court sustained the finding.

The Hostetter-Connellsville Coke Company of Pittsburgh have received a request to give figures on several thousand tons of coke for the Belgian market. Owing to the very heavy domestic demand for their coke, and the fact that they have their entire product sold for some time, the concern will be unable to comply with the request.

The Harrison Safety Boiler Works, Philadelphia, Pa., have made the following recent sales of the Cochrane feed water heaters and purifiers: Alabama Steel & Wire Company, Ensley, Ala., 6000 horse-power; Ohio Steel Company, Youngstown, Ohio, 10,000 horse-power; Hoopes & Townsend, Philadelphia, 1000 horse-power; American Steel Foundry Company, St. Louis, Mo., 850 horse-power, and Dickson Mfg. Company, Scranton, Pa., 200 horse-power, and sales of the Cochrane steam separator to the Franklin Mining Company, Hancock, Mich., 14 and 6 inch; Carnegie Steel Company, Pittsburgh, three 16-inch and one 10-inch; Laughlin & Co., Limited, Pittsburgh, six 5-inch, five 10-inch, one 7-inch, one 4-inch, two 6-inch and two 12-inch; Cambria Steel Company, Johnstown, Pa., two 13-inch; American Blower Company, London, England, 4-inch; Clisbolt Machine Company, Madison, Wis., 14-inch; Monongahela Furnace, McKeesport, Pa., 2 and 2½ inch; Brier Hill (Ohio) Iron & Coal Company, two 12-inch; E. W. Blatchford Company, Chicago, 5-inch; National Tube Works, McKeesport, Pa., 3-inch; Denver Engineering Works Company, Denver, Col., 4½ and 5 inch; Norton Bros., Maywood, Ill., 6-inch.

The Omaha Mechanical Boiler Cleaner Company of Omaha, Neb. have been incorporated with a capital of \$100,000 for the manufacture of a patent boiler cleaner. The incorporators are P. A. Dougherty, E. V. Lewis, C. S. Garrigins, W. S. Johnson, A. B. Cook, all of Omaha.

The Peerless Machine Works of Kansas City, Mo., contemplate erecting a new factory for the manufacture of iron beds, and are now looking for a suitable location. The probabilities are that some point in Indiana will be selected.

The Detroit Valve & Washer Company, Detroit, Mich., have increased their capital stock from \$10,000 to \$20,000 and the number of shares from 1000 to 2000.

The Berlin Iron Bridge Company of East Berlin, Conn., have received a contract for a warehouse building 40 feet wide, 120 feet long and 20 feet high, to be erected in Dutch Gulana.

The Riverside Iron Works, Wheeling, W. Va., recently taken over by the National Tube Company, are preparing plans for the building of 60 additional by-product coke ovens of the Semet-Solvay type, at Benwood, W. Va. The new ovens will be of enlarged capacity, and will be equivalent to 80 ovens of the type now in use at this plant. Contracts will be closed in a few days.

Information Wanted.—Who manufactures machinery for producing tar, pitch and turpentine, first from pine roots; second, from birch bark?

A correspondent desires to know who is the manufacturer of the Bozoan forge.

The great by-product coke oven plant of the United Coke & Gas Company, at Everett, Mass., was started up on the 8th inst., everything going off without the slightest mishap.

The Spang-Chalfant Company.

(By Telegraph.)

Spang, Chalfant & Co. of Pittsburgh, operating the Etna Iron & Tube Works, at Etna, Pa., have made application for a charter of incorporation, to be known as the Spang-Chalfant Company, Incorporated, with capital stock of probably \$1,000,000. David E. Park of the Park Steel Company of Pittsburgh has bought a large interest in the concern and will be made president. The incorporators are David E. Park, Charles H. Spang, Geo. C. Chalfant, C. C. Chalfant and Henry Chalfant. The concern will make some very important improvements and large additions to their plant. Plans for these are now being drawn by Julian Kennedy, who has been appointed consulting engineer. It is proposed to add 50-ton lap weld furnaces for large sizes of lap weld tubes, and the daily capacity, which is now about 125 tons, will be increased to 250 tons. The entire equipment will be made electrical as far as possible, superseding steam. Work on these improvements will be commenced at once, and some of the material has already been bought. This firm are meeting with such a heavy demand for their pipes and tubes that a considerable enlargement of their plant is absolutely necessary.

The Union Steel & Chain Company.—At a meeting of the Union Steel & Chain Company, held on the 14th, the following directors were elected: Perry Belmont, capitalist; J. W. Hinkley, president United States Casualty Company; H. L. Horton of H. L. Horton & Co., bankers; Thomas S. Holmes of Holmes & Co., bankers; Henry W. Poor of Poor & Greenough, bankers; Frank Rockefeller, Standard Oil Company, and William Rotch, director Atchison, Topeka & Santa Fe Railroad Company. The board will be increased and many directors and officers added from the plants that are now being examined and will be taken over at a later date. The secretary of the company is Charles R. De Freest, and the offices are in the Empire Building, New York.

The Woodruff Separating Machine.—The Autobon Machine Works, New Haven, Conn., are calling attention to the Woodruff separating machine, which in view of the present high price of metals is being extensively called for. The machine is referred to as an ingenious combination of vibrating screen and fan for extracting all shot and other small iron from foundry refuse. It occupies ground space about 4 x 8 feet, requires about 1½ to 2 horse-power to drive it, can be set up anywhere indoors or out in shed where power can be had. It is stated that a barrel of refuse will pass through the separator in three or four minutes, and the iron will be deposited in a box provided for it and the other materials be thrown to rear of the machine. They advise us that they have recently shipped these machines to Kansas City Car & Foundry Company, Kansas City, Mo.; to L. Wolff Mfg. Company, Chicago, Ill., and to other prominent concerns, both here and in foreign countries.

S. V. Huber, for some years mechanical engineer of the Lloyd Booth Company, Youngstown, Ohio, has severed his connection with that firm and associated himself with H. E. Schild, formerly chief engineer of the Colorado Fuel & Iron Company, Pueblo, Colo., to carry on a general line of engineering work under the firm name of S. V. Huber & Co., Ferguson Building, Pittsburgh. The new concern will engage in blast furnace construction, Bessemer and open hearth steel works, continuous mills and labor saving devices relating to rolling mills, steam and hydraulic machinery.

An interesting phase of the labor question in Western rolling mills is reported to be likely to develop over the employment of non-union workmen in the Tudor Iron Works, at East St. Louis, now belonging to the Republic Iron & Steel Company. The Amalgamated Association threaten to shut down the other mills of the company unless the Tudor mill is brought under union rules. If this should occur it would make the supply of merchant bar iron and steel exceedingly short. It is to be hoped that such a contingency may be avoided, not only for the sake of the interests that would be directly affected, but also the trade at large.

The architectural iron workers of St. Louis have struck for an eight-hour day and a minimum rate of 30 cents per hour. The number of men striking is not large, but the others who are obliged to be idle with them are about 10,000.

The Iron and Metal Trades.

In place of any check of the upward tendency in the Iron markets, prices are still rising all along the line, and the feeling is growing more and more nervous. Consumption does not seem to be checked in any direction; on the contrary, it is a question more of delivery than of price. While it is true that the bulk of current business in many lines is merely the covering of urgent needs, it is equally true that a disposition to take hold for next year's delivery at or near present values is developing.

The manner in which contracts are being covered for material for the balance of this year indicates that consumers do not hope for any receding of values. Where usually contracts for a long season are placed, buyers, however, are not disposed to go much into 1900. Thus the Agricultural Implement makers have bought very heavily of Bars, Merchant Steel, Malleable Castings, &c., for the balance of 1899, but, against their usual custom, they are not covering beyond that period.

The scarcity of Bessemer Pig continues, and some good sales have been made. Reports are current that some of the large works of the Central West still need additional quantities. The situation is reflected to some extent by the purchases of Southern Basic Pig for 1900 delivery which have already been made.

In Foundry Iron the advance continues under a moderate volume of business. We note a sale of about 20,000 tons of Southern Iron to be put into Warrant Yard during the first part of 1900.

The rush for material is well reflected by the heavy sales of Muck Bars in the Central West, one interest alone having sold 16,000 tons in the last few days. The price has now risen to \$31.25 to \$31.50.

We understand also that there have been some very large sales of Sheet Bars for the fourth quarter.

In Bar Iron the Eastern as well as the Western markets have had an extraordinary rush of business, and the Eastern prices, which lagged behind the parity of Western prices, have now taken a rapid upward movement.

The scarcity in Plates continues, and with the constant flow of new shipbuilding and bridge orders coming in it looks as if the large additions to capacity of Plate plants would be well taken care of. In fact, we hear of one sale of 5000 tons for next year's delivery at present prices.

Inquiries from abroad keep coming in, but there is little chance of doing anything with them. In fact, strenuous efforts have been made to switch contracts for delivery in Europe, taken a long time ago, over to English or Continental plants, since the material could be resold at handsome profit here. But this has been successful to only a very modest extent, and the Billets, Wire Rods, Sheet Bars, &c., contracted for will have to be shipped.

In the Metal Trades, Copper is easing up, and nearby deliveries of Lake may be easily placed at 18 cents. Spelter is having a sharp decline.

A Comparison of Prices

At date, one week, one month and one year previous.

Advances Over the Previous Month in Heavy Type. Declines in Italics.

June 15, June 8, May 17, June 15,
1899. 1899. 1899. 1898.

PIG IRON:

Foundry Pig, No. 2, Standard, Philadelphia.....	\$17.50	\$16.50	\$15.75	\$10.50
Foundry Pig, No. 2, Southern, Cincinnati.....	16.00	15.50	14.50	8.75
Foundry Pig, No. 2, Local, Chicago.....	17.50	16.50	15.50	11.00
Bessemer Pig, Pittsburgh.....	18.50	18.00	16.50	10.40
Gray Forge, Pittsburgh.....	16.25	16.25	15.00	9.15
Lake Superior Charcoal, Chicago.....	19.00	18.00	17.00	11.50

BILLETS, RAILS, ETC.:

Steel Billets, Pittsburgh.....	31.50	30.00	27.00	14.75
Steel Billets, Philadelphia.....	31.50	31.00	29.00	17.00
Steel Billets, Chicago.....	32.50	32.00	28.00	16.25
Wire Rods, Pittsburgh.....	27.00	26.00	25.00	17.50
Steel Rails, Heavy, Eastern Mill.....	1.80	1.75	1.70	1.40
Spikes, Tidewater.....	1.70	1.65	1.40	1.05

OLD MATERIAL:

O. Steel Rails, Chicago.....	13.00	12.00	11.00	8.00
O. Steel Rails, Philadelphia.....	14.00	14.50	14.00	10.50
O. Iron Rails, Chicago.....	17.50	18.00	17.00	12.50
O. Iron Rails, Philadelphia.....	18.00	18.00	18.00	12.00
O. Car Wheels, Chicago.....	16.00	15.50	15.50	11.50
O. Car Wheels, Philadelphia.....	15.50	15.50	15.00	10.00
Heavy Steel Scrap, Chicago.....	12.00	11.00	8.50

FINISHED IRON AND STEEL:

Refined Iron Bars Philadelphia.....	1.85	1.65	1.55	1.05
Common Iron Bars, Youngstown.....	1.75	1.80	1.50	0.90
Steel Bars, Tidewater.....	2.00	1.90	1.75	1.10
Steel Bars, Pittsburgh.....	2.00	2.00	1.65	0.90
Tank Plates, Tidewater.....	2.55	2.50	2.25	1.25
Tank Plates, Pittsburgh.....	2.30	2.30	2.10	1.10
Beams, Tidewater.....	1.83	1.83	1.63	1.30
Beams, Pittsburgh.....	1.75	1.75	1.50	1.15
Angles, Tidewater.....	1.85	1.85	1.65	1.20
Angles, Pittsburgh.....	1.75	1.75	1.50	1.05
Skelp, Grooved Iron, Pittsburgh.....	2.05	2.05	1.80	1.05
Skelp, Sheared Iron, Pittsburgh.....	2.20	2.20	1.95	1.10
Sheets, No. 27, Chicago.....	3.00	3.00	2.90	1.95
Sheets, No. 27, Pittsburgh.....	2.85	2.85	2.70	1.80
Barb Wire, f.o.b. Pittsburgh.....	2.95	2.95	2.70	1.70
Wire Nails, f.o.b. Pittsburgh.....	2.35	2.35	2.10	1.30
Cut Nails, Mill.....	2.05	2.05	1.65	1.07½

METALS:

Copper, New York.....	18.60	18.25	18.50	11.87½
Spelter, St. Louis.....	6.00	6.45	6.70	5.00
Lead, New York.....	4.45	4.45	4.45	3.87½
Lead, St. Louis.....	4.25	4.30	4.32½	3.75
Tin, New York.....	25.60	25.40	25.65	15.10
Antimony, Hallett, New York.....	10.00	10.00	10.00	9.00
Nickel, New York.....	38.00	38.00	38.00	34.00
Tin Plate, Domestic, Bessemer, 100 lbs., New York.....	4.05	4.05	4.05	2.85

Chicago (By Telegraph.)

Office of The Iron Age, 805 Fisher Building.
CHICAGO, June 14, 1899.

While the activity continues in some branches of the Iron market business in other respects is checked by the shortage in supplies. The implement manufacturers are now placing season contracts, and this runs up the tonnage of the present volume of business quite considerably. Further advances are noted in Pig Iron as well as in the finished products. Cold Rolled Shafting has been marked up to 30 per cent. off. The rolling mill wages schedule has been settled for another year on a 25 per cent. advance for the men.

Pig Iron.—The volume of business is large in both local and Southern Iron, and furnace companies are turning away as much business if not more than they are entering, being simply unable to meet conditions as to deliveries. The business has been of a general character, comprising purchases by Malleable Casting concerns, implement manufacturers and makers of all kinds of specialties, as well as jobbing founders. The Minerva Furnace, at Milwaukee, was blown in the past week, and thus adds something to the local supply. Prices are still advancing, and it now looks as if \$20 would soon be realized for Coke Iron. Sales of Lake Superior Charcoal have been made up to \$20.50. A great deal of inquiry is being received for deliveries of all kinds of Iron running into next year, and some sales have already been made for such deliveries. Southern freight rates will be advanced 50c. per ton June 19 by the railroads south of the Ohio River, which with 15c. advance by the Northern railroads July 1, will make the rate \$4.15 to Chicago from Birmingham. These advances are already being added to the price of Iron. The Southern manufacturers, however, have advanced their quotations at furnaces \$1 per ton. Local Iron is also \$1 higher. We quote for cash as follows:

Lake Superior Charcoal.....	\$19.00 to \$21.00
Local Coke Foundry, No. 1.....	18.00 to 18.50
Local Coke Foundry, No. 2.....	17.50 to 18.00
Local Coke Foundry, No. 3.....	17.00 to 17.50
Local Scotch No. 1.....	18.00 to 18.50
Ohio Strong Softeners, No. 1.....	19.00 to 20.00
Southern Silvery.....	16.50 to 16.75
Southern Coke, No. 1.....	18.15 to 18.40
Southern Coke, No. 2.....	17.65 to 17.90
Southern Coke, No. 3.....	15.50 to 15.75

Southern Coke, No. 1 Soft.....	16.50 to 16.75
Southern Coke, No. 2 Soft.....	17.65 to 17.90
Foundry Forge.....	16.65 to 16.90
Gray Forge and Mottled.....	16.65 to 16.90
Southern Charcoal Softeners.....	18.65 to 18.90
Alabama and Georgia Car Wheel....	20.50 to 21.50
Malleable Bessemer.....	18.00 to 19.00
Standard Bessemer.....	18.00 to 19.00
Jackson County and Kentucky Silvery, according to Silicon.....	21.00 to 23.00

Bars.—Season contracts are now being placed by implement manufacturers, both for Iron and Soft Steel Bars. They have thus far probably bought more Steel than Iron, the purchases of the former being estimated at about 30,000 tons during the week. Most of those now buying here are covering their wants only for the last half of the year, and say they will wait until later before buying for delivery into next year, hoping that prices may be easier in the meantime. A very active demand is experienced for Bar Iron from the general trade and the outlook is exceedingly encouraging for manufacturers. Mill shipments of Common Iron are continued at 1.80c., Chicago, while Soft Steel Bars range from 1.90c. to 2.15c., the higher price being quoted by Pittsburgh manufacturers. Hoops have again advanced and are now quoted at 2.25c., base, Chicago, for Bands. Jobbers report a multitude of small orders, finding all their customers in constant need of material and urging immediate shipment. They quote small lots from stock at 2.10c. for Bar Iron, 2.15c. to 2.30c. for Soft Steel Bars, 3.25c. for large lots of Norway and Swedish Iron, and 3.50c. for small lots.

Structural Material.—Manufacturers' agents report good sales in a small way, aggregating a fine tonnage for the week. Nothing very large is coming up at present, but additional buildings are projected, which may be on the market in the near future. Mill shipments are quoted as follows, Chicago delivery: Beams, Channels and Zees, 15 inches and under, 1.90c.; 18 inches and over, 2c.; Angles, 3 to 6 inches, 1.90c.; over 6 inches and under 3 inches, 2c.; Tees, 1.95c.; Universal Plates, 2.65c. Store prices are from ¼c. to ½c. above these rates.

Merchant Pipe.—The prices on mill shipments have been advanced to 50 and two 10's. Mills are now taking orders for shipment, but deliveries are to be made at their convenience, probably four months hence. More business is being offered in this way than makers are willing to consider. Prices from warehouse on small lots are 50, 10 and 5. Merchant Steel Boiler Tubes are now quoted in small lots, 1¼ to 1¾ inches, inclusive, 40 per cent. off; 2 to 2¾ inches, inclusive, 50 per cent. off; 3 inches and larger, 55 per cent. off, with an extra 5 off for carload lots.

Plates.—The local manufacturers are so crowded with work that they are refusing to make quotations. Considerable business is being done with Pittsburgh mills, but it is getting more and more difficult to find a mill able to make delivery inside of three months. The jobbers are having a strong demand from stock with perhaps a little less movement in heavy Plates. They continue to quote small lots of Tank Steel from stock at 2.75c. to 3c., but intimate that they will soon be obliged to advance the minimum. Mill shipments are quoted as follows, Chicago delivery: Tank Steel, 2.65c.; Shell, 2.75c.; Flange, 2.85c.; Marine, 2.95c.; Fire Box, 3c. upward, according to brand.

Sheets.—The influence of implement contracts is being felt by Sheet manufacturers, some of them having secured quite good orders of this character. The general demand for Sheets is also improving, particularly for Galvanized Sheets. Mill shipments of No. 27 Black are quoted at 3c. to 3.15c., Chicago, while Galvanized Sheets are held at 70 and 10 and 5 to 70 and 5 per cent. off. Jobbers quote small lots of No. 27 Black at 3c. to 3.15c.; Wood's Smooth, 3.35c., and Galvanized at 70 and 5 to 70 per cent. off.

Merchant Steel. Implement manufacturers are placing contracts to some extent for Merchant Steel, but find that mills are disposed to cut down quantities rather than enter contracts freely. The general demand is fair. Mill shipments, Chicago delivery, are quoted as follows: Smooth Finished Machinery Steel, 2.55c. to 2.65c.; Smooth Finished Tire, 2.35c. to 2.45c.; Open Hearth Spring Steel, 2.80c. to 2.90c., base; Toe Calk, 2.55c. to 2.65c., base; Ordinary Tool Steel, 6c. to 7c.; Specials, 10c. and upward. Jobbers are quoting small lots from stock at 2.85c. for Tire, 2.95c. for Machinery, 3.40c. for Spring, and 3.65c. for Toe Calk, full extras.

Billets and Rods.—Ordinary Bessemer Billets are extremely scarce. Buyers who purchase small quantities for forging are having great difficulty in securing standard sizes, and are paying high prices, which are covered entirely by the urgency of the demand. The mills in this way have realized as high as \$33. Open Hearth Billets have been sold at \$33 to \$35 for late delivery, but it is stated that no more can be had at this price. Small lots of Wire Rods have been sold at \$42.

Rails and Track Supplies.—The indications strongly point to an advance in Standard Sections of Rails in order to bring their price more closely in relation to that of Billets. The local mills have been quoting \$26 to \$30, according to quantity, but it is doubtful if anything can be had now at the inside price. Only small lots have recently been sold. A good demand is noted for Light Rails, with sales of about 4000 tons. An inquiry is in the market from Corea. The local mills are now sold up to September and quote \$30 to \$37, according to weight. Track Supplies are quoted as follows: Fish Plates, 1.60c.; Spikes, 2.25c. to 2.35c.; Track Bolts, with Hexagon Nuts, 3.10c. to 3.25c.; Square Nuts, 3c. to 3.10c.; Steel Links and Pins, 2.25c. to 2.30c.; Iron Links and Pins, 2c.

Old Material.—Old Iron Rails are a little easier. Consumers appear to be well supplied, and dealers are now the only buyers. Considerable business is being done in Old Steel Rails, and prices are somewhat higher. A good inquiry is noted for Old Car Axles. Cast Scrap is a little dearer, and a better demand is reported. Not much business is now being done with rolling mills, who seem to be fairly stocked. Some Low Phosphorus Plate Scrap has been sold at \$20, gross ton. Dealers' selling quotations are as follows, per gross ton: Old Iron Rails, \$17.50 to \$17.75; Old Steel Rails, mixed lengths, \$13 to \$13.25; Old Steel Rails, long lengths, \$13.50; Relaying Rails, \$19 to \$20; Old Car Wheels, \$16; Heavy Melting Scrap, \$12 to \$12.50; Mixed Steel, \$8.50. The following selling prices are per net ton: No. 1 Railroad Wrought, \$15.50 to \$16; Dealers' Forge, \$12.50 to \$13; Fish Plates, \$17; No. 1 Mill, \$9; Heavy Cast, \$11.75 to \$12; Stove Plates, \$7.75 to \$8; Iron Car Axles, \$18.50; Horseshoes, \$12 to \$12.50; Cast Borings, \$6; Steel Axle Turnings, \$8.25; Iron Axle Turnings, \$8.75; Machine Shop Turnings, \$7.50.

Metals.—Copper is a trifle easier, carload lots of Lake being now quoted at 18¼c., and Western Brands, 17¼c. No changes are noted in other metals, Spelter being still held at 6.50c., and Lead at 4.40c.

Tin Plate.—A particularly good demand is noted for Roofing Plates, on which prices are firm and advancing. Higher prices are daily expected on Bright Plates, but no new rates have yet been announced.

Philadelphia.

Office of The Iron Age, Forrest Building,
PHILADELPHIA, PA., June 13, 1899.

The past week has been one of the most exciting of the whole year as regards Iron and Steel. It is almost impossible to keep close track on prices, as some continue last week's quotations without having anything to sell, while others who have material and can make deliveries get just about what they choose to ask. No. 2 X Foundry sold to-day at over \$18, Philadelphia, although some name \$17 to \$17.50 as selling prices, but these figures are probably out of date now and \$17.50 to \$18 would perhaps be as low as any one could do for fair qualities of Iron. There are some, however, who talk \$20 and are not caring for business at less money, as they claim to get the equivalent of \$20 in other markets. Bars are very much higher than they were a week ago, the demand being altogether unprecedented. One buyer wanted 4000 tons and took two 1500-ton lots at a cost very close to 2c., f.o.b. cars at mill. There is still plenty of business around at 1.85c. to 1.90c., but only small lots can be had, as makers want to keep very close to shore until matters settle down. It is curious that very few manufacturers of either Pig or Finished Material are disposed to sell much stuff for forward delivery, although when prices were 60 and 80 per cent. lower there seemed no limit to the amount they would enter. The demand is simply enormous and continues to pour in from all sources, bridge, ship, locomotive and boiler work being conspicuously active. The Cramp Ship Building Company have just taken an order from the American Steamship Company for two of the largest steamers ever built in this country. They are to be pushed to completion as rapidly as possible and will sail on the line from New York to Southampton. It would be invidious to name one line of business as being busier than another, as all lines are being worked to their full capacity.

Pig Iron.—The demand for Iron does not appear to be very heavy, but there is so little for sale that even a moderate demand puts Iron a little higher every week, and sometimes it goes up every day. On such a market it is difficult to quote exact prices, as sellers are themselves not always able to keep up with the procession, hence 50c. to \$1 of a difference is not at all unusual. At this writing, however, \$17.50 to \$17.75 would be a fair average for No. 2 X Foundry, \$17 for No. 2 Plain and \$16.50 to \$16.75 for good Mill Irons. Sales of No. 2 X have been made at over \$18, however, and as the general tendency is toward higher figures it is not unlikely that

\$18 may be an average price by the end of the week. Furnace banks are said to be very bare of stocks, so that it may be assumed that deliveries are largely on old contracts and that there is comparatively little Iron going out at the figures now ruling. For the last half of the year there is an indisposition to sell very large lots, but whether it is that makers are already under contract or that they are afraid of still higher prices is an open question. Nobody seems very sure of his position, but so long as Iron goes out as fast as it is made there is no immediate cause for anxiety, although there is a general disposition to discourage further advances at this time. A fair average of asking prices for seaboard or equivalent points would at this time be about as follows: No. 1 X Foundry, \$18.50; No. 2 X Foundry, \$17.50 to \$18; Plain, \$16.75 to \$17; Standard Mill Iron, \$16.50 to \$16.75; Cinder Irons, \$15 to \$15.25; Basic, \$17.50 to \$18; Low Phosphorus, \$19.75 to \$20, according to points of delivery.

Billets.—Steel is wanted, but it is almost impossible to meet with a seller. Nominal prices, \$31.50 to \$32, for seaboard or for deliveries at equivalent points.

Plates.—No abatement in the demand, which is, in fact, heavier than it has been at any time during the year. Urgent inquiries are coming in from all sources and from all directions, but only a portion of the demand can be met, notwithstanding the fact that buyers intimate that \$2 or \$3 per ton would be no obstacle, providing that the orders are accepted and deliveries guaranteed within a reasonable time. The magnitude of the demand seems to paralyze sellers, however, and it is hard to get them to consider any proposal emanating from anywhere outside their regular trade. Prices are very erratic, but at this writing, for seaboard or nearby points, are quoted as follows: Carload lots and upward are quoted at 2.60c. to 2.70c. for ¼-inch and thicker; Shell, 2.75c. to 2.80c.; Flange, 2.90c.; Fire Box, 2.95c. to 3c.

Structural Material.—What has been said in regard to Plates applies equally well to Structural Material. The demand is of the same extraordinary character as for months past, and as far as can be seen there is no immediate prospect of abatement. It is said the capacity of the mills is already pretty well mortgaged for the balance of the year and it would be exceedingly difficult to take care of any large amount of new business. Prices are nominally as follows, but special rates are paid for guaranteed deliveries: Angles, 1.83c. to 2.15c.; Beams, 15-inch, 1.83c. to 2.15c.; Tees, 1.93c.; Bulb and Deck Beams, 2.05c. to 2.15c.

Bars.—The movement in Bars is even more extraordinary than that in Plates or Structural Material, as the capacity for production has been largely increased without being at all adequate to meet the demand. Inquiries are urgent for both large and small lots and prices show a steady advance, in some cases very close to 2c. having been paid for 1000-ton lots at the mill. The outlook is exceedingly satisfactory to manufacturers, although they find it difficult to meet requirements as to deliveries. Prices are irregular, but mostly within the range named herewith for seaboard delivery or its equivalent: Ordinary Bars, 1.70c. to 1.75c.; Refined Bars, 1.85c. to 2c.; Test Bars, 2c.; Steel Bars, 2.10c. to 2.15c.

Sheets.—The demand is very active and although mills have had a long run they find no let up whatever. Thin Sheets are beginning to be called for in large lots, and it will require the full capacity of mills for a long time to come to get even with their orders. Prices are firm as follows, but disposed to work toward a higher level—viz.: For best makes (Common Sheets two-tenths less): No. 10, 2.70c.; No. 14, 2.80c.; No. 16, 2.90c.; Nos. 18-20, 3c.; Nos. 21-24, 3.10c.; Nos. 26, 27, 3.20c.; No. 28, 3.30c.

Old Material.—Some irregularity prevails in this department and prices jump around very curiously—advances in some articles, declines in others, Steel being the weakest article on the list. Bids and offers are about as follows for deliveries in buyers' yards: Cast Borings, \$10.75 to \$11; Wrought Turnings, \$11.75 to \$12.25; Machinery Cast, \$13.25 to \$13.75; Old Car Wheels, \$15.50 to \$16; Heavy Steel Scrap, \$14 to \$14.50; Steel Rails, \$14 to \$15; Iron Rails, \$18 to \$19; No. 1 Railway Scrap, \$18.50 to \$19; Iron Axles, \$23 to \$25; Steel Axles, \$16.50 to \$17.50.

The Westinghouse Air Brake Company of Pittsburgh have been paying dividends at the rate of 20 per cent. per annum on the new capitalization of \$11,000,000, and the current report is that it has been earning something like 40 per cent. The foreign company, known as the Westinghouse Brake Company of London, England, which is controlled through ownership of the stock by the Westinghouse Air Brake Company of Pittsburgh, have made some valuable acquisitions in Russia.

Cleveland.

CLEVELAND, OHIO, June 13, 1899.

Iron Ore.—The figures officially reported show that the output of Ore to June 1 at all upper lake ports aggregated 2 120,067 gross tons, as against 2,334,039 tons to June 1, 1898, a decrease of only 213,972 tons. This showing, combined with the fact that shipments of Iron Ore this season have far surpassed any previous records in the lake trade, proves that the mining companies have set out to bring down from Lake Superior every pound of Ore which it is possible to get out of the mines. Their accomplishments as shown in the records made would not have been possible, however, had it not been for the excellent dispatch which has been given boats at Lake Erie ports. Both the docks at unloading ports and the railroads having to do with the transportation of the Ore to the furnaces have arisen to the occasion in a far greater degree than had been anticipated, and it must be admitted that as yet the much feared car famine has not materialized. Estimates made by the most conservative mining interests with headquarters here at Cleveland estimate the output of Ore from the Minnesota ranges at 8,000,000 tons for the season, about 1,800,000 coming from the Vermillion range and the balance from the Mesaba. It is estimated that the Duluth & Iron Range Road will haul in the neighborhood of 4,150,000 tons of Ore and that the Duluth, Missabe & Northern will handle 3,175,000 tons. The latter road at least—and probably both lines—will break all previous records. The Eastern Minnesota road's share is estimated at 1,000,000 tons on the season. The estimated output at the various mines on the ranges mentioned is as follows: Chandler, 800,000 tons; Minnesota (at Tower), 500,000 tons; Pioneer, Zenith and Savoy, 170,000 tons each; Roberts, 75,000 tons; Hale and Kenawha, 100,000 tons; Canton, 200,000 tons; Elba, 75,000 tons; Genoa, 400,000 tons; Sparta 250,000 tons; Fayal 1,000,000 tons; Auburn, 350,000 tons; Biwabik, 400,000 tons; Adams, 500,000 tons; Ohio, 150,000 tons; Mountain Iron, 1,100,000 tons; Pillsbury, 200,000 tons; Sellers, 200,000 tons; Hull and Rust, the Lake Superior group, 400,000 tons; Franklin, 150,000 tons; Commodore, 75,000 tons, and Sauntry, 100,000 tons. The scarcity of miners on both the Vermillion and Mesaba ranges continues to be a big problem. Almost all the mines are running with considerably smaller sized crews than they need, and efforts to bring in men from outside sources have not proven as successful as might be wished. Moreover there is still the more or less heavy exodus to the Copper country to be reckoned with. Some of the mine operators, in the endeavor to hold all the men possible, have decided to have all the underground work done on the contract system, which will enable the good miners to make considerably more money than would be possible on the wage scale. In this connection it is interesting to note that the passage of Ore through the canal at Sault Ste. Marie during the month of May aggregated 1,619,394 tons. With the cargoes of Ore now being brought down there can be little doubt that the cargo records of previous seasons will be smashed many times. So far the cargo of 7023 gross tons carried by the barge "John A. Roebling" last season has not been equaled. A topic of very general discussion has been the placing of the Wolvin contract with the American Ship Building Company for the first 500-foot Steel freighters on the Great Lakes. This means that 11 Steel Ore carrying vessels of the largest size will go into commission in the spring of 1900, and as each of these four boats just contracted for will be able to carry 8000 tons of Ore on each trip, little calculation is needed to show that the advent of these new vessels is bound to prove a considerable factor in the movement of Iron Ore. Moreover there are well authenticated rumors of the placing of additional contracts for vessels designed for the use of the great Iron and Steel producing interests. Everywhere there is a strain to handle great quantities of Ore in a short time, and certainly the ambition would seem near to fulfillment when, as recently happened, the Rockefeller steamer "Morse" towed one of the company's barges from Duluth to Conneaut, the two vessels carrying an aggregate cargo of 13,000 tons of Ore, and made the remarkable speed of 11.2 miles per hour for the entire distance from the head of the lakes to the Ore unloading port, with no allowance of any kind for checks in the Sault Ste. Marie Canal and the Detroit River. Finally, the freight situation is possessed of a strength fully as great as has characterized it at any time since the opening of navigation. There is reason to believe that the vessel man who saw a rate of \$1 on Ore from the head of the lakes in the very near future was, to say the least, a trifle premature in his prediction, but all the tonnage offered is being covered as rapidly as it can be offered at the prevailing rates of 75c. from the head of the lakes, 70c. from Marquette and 65c. from Escanaba.

Pig Iron.—The excitable condition of the market seems to increase rather than diminish, a fact possibly due to the entrance of an element of speculation into the situation. This has been regretted in some quarters, but it must be regarded as inevitable in view of the extreme

probability that all grades of Ore will advance several dollars within as many weeks. Despite the eagerness of the speculators to make purchases, however, there is no record of many sales of Bessemer, or at least not many sales of any consequence during the past week. A great difficulty is experienced in securing any accurate quotations owing to the fact that every seller is acting independently and manifests no especial desire to make public the terms of individual transactions. About the only sale of Bessemer reported was at the rate of \$18 per ton. Valley furnace, at which figure a lot of 2000 tons was disposed of. Although the Bessemer quotation cannot consistently be marked up any, there is no doubt that the situation is much stronger in every respect. Several sellers give \$18, Valley furnace, for No. 1 Foundry and \$17, Valley furnace, for No. 2 Foundry as conservative quotations for Foundry grades, but sales of lots of several hundred tons of No. 2 have been reported at \$18, and the sellers who secured these prices persist in the contention that \$18.50 could readily be secured for No. 1 Foundry were they able to offer any for immediate delivery. The opinion among sales agents that July 1 will see a general quotation of \$20 per ton, Valley furnace, for Bessemer and No. 1 Foundry seems to have been strengthened during the past week. Gray Forge is practically an unaccountable factor and Lake Superior Charcoal is nominally \$20 on dock at Lake Erie ports, although it would be a difficult matter to find any for sale.

Finished Material.—The week has been marked by a continuance of a good inquiry and a very fair volume of orders on contracts. No sales of Structural Material of any magnitude are reported, but the advance in quotations announced last week appears to be well taken. Sales agents are quoting Bar Iron at 1.90c. out of stock and Machinery Steel at 2.25c. out of stock, and in some instances agents whose supply of Bar Iron is limited are making considerably higher quotations. One prominent firm making no offerings under 2.25c. The quotation on No. 27 Sheets remains as heretofore, but for No. 20 gauge and heavier another advance of \$1 per ton is reported. Pipe is another commodity which has experienced an upward trend. Hoops and Bands remain the same, with a considerably firmer market, but Hollow Shafting figures are higher the present price being 30 and 5 per cent. off for carloads and 30 per cent. off for less than carloads. Many of the Pipe mills are practically full up and are refusing to submit quotations. Rivets also are difficult of quotation, a conservative figure being 3.40c, as against 3.20c. last week. In Rails all sections of 50 lbs. and upward have been advanced to \$28, Pittsburgh. One large interest announces the establishment of a charge of \$1 for cutting Iron to specified lengths of 2 feet and over; lengths under 2 feet will be special according to the waste, &c. Other firms are expected to follow suit at once. Ship Plate quotations remain at 2.50c., although most sales agents plead inability to sell any more material this year. The price of \$350,000 each, given out in connection with the contract for four large Steel freight steamers for Great Lake service, awarded a few days ago to the American Ship Building Company of this city, indicates general conditions in the ship building industry.

Old Material.—The past week has seen an activity very satisfactory to dealers. Material has come into the market in a heavier stream and sales have taken care of it as rapidly as it made an appearance. Quotations which show only minor changes are as follows: No. 1 Wrought, \$18; No. 1 Cast, \$13.50; Steel Melting Stock, \$15.50; Iron Rails, \$20; Car Wheels, \$16; Turnings, \$10.50; Borings, \$9.50.

Cincinnati. (By Telegraph.)

Office of The Iron Age, Fifth and Main streets, }
CINCINNATI, June 14, 1899. }

The past few days have been quiet so far as the volume of selling is concerned. This condition, however, is due solely to lack of Pig Iron with which to satisfy known wants. There is not a seller but who knows just where he could place many thousand tons if the Iron was obtainable. Furnaces and their agents are almost a unit in desiring no further advance in prices just at present at least. Buyers are, however, becoming more anxious as to supplies and keep putting the price up in spite of any conservative spirit which exists. The situation is more decidedly strained than it has been, and that there is a pronounced shortage of Pig Iron is more evident. Prices have again advanced from 25c. to 50c. per ton at the furnaces. There have been some good sales in Northern as well as Southern Iron for the last quarter of this year, but few transactions for 1900 are reported. The sale of a round lot of Charcoal Car Wheel at an advance of 50c. over last week's maximum figure is reported. The only feature of the week which occasioned any surprise was the action of the Southern railroads in advancing freight rates 50c., to take effect June 21. It was known that this advance was coming, but it came sooner

than many thought it would. To-day's quotations take no account of the advanced freight rates. Higher quotations seem inevitable and the prediction that No. 2 Foundry will go to \$15, Birmingham, is not at all improbable. We quote, f.o.b. Cincinnati, as follows:

Southern Coke, No. 1.....	\$16.50 to \$17.00
Southern Coke, No. 2.....	16.00 to 16.50
Southern Coke, No. 3.....	15.50 to 16.00
Southern Coke, No. 1 Soft.....	16.50 to 17.00
Southern Coke, No. 2 Soft.....	16.00 to 16.50
Southern Coke, Gray Forge.....	14.75 to 15.25
Southern Coke, Mottled.....	14.75 to 15.25
Ohio Silvery, No. 1.....	21.00 to 22.00
Ohio Silvery, No. 2.....	20.00 to 20.50
Lake Superior Coke, No. 1.....	17.75 to 18.25
Lake Superior Coke, No. 2.....	17.25 to 17.75

Car Wheel and Malleable Irons.

Standard Southern Car Wheel.....	\$17.25 to \$18.25
Lake Superior Car Wheel and Malleable.....	21.00 to 21.50

Plates and Bars.—No special change in the situation. Business is active and prices are stiff and bullish. We quote, f.o.b. Cincinnati: Bars, wholesale, 2c., with half extras; retail, 2.10c., with full extras; Bar Angles, 2.25c. for ½-inch and larger; Sheets, No. 10, 2.70c.; No. 27, 3.10c.; Plates, 2.50c. to 2.75c.

Old Material.—Market quiet and values steady. A fair quotation is as follows, f.o.b. Cincinnati: No. 1 Wrought Iron Railroad Scrap, \$16 gross ton; Cast Scrap, \$11, gross; Axles, \$21, gross; Iron Rails, \$19; Steel Rails, \$13.50 to \$14; Car Wheels, \$14.50.

St. Louis. (By Telegraph.)

Office of The Iron Age, 512 Commercial Building, }
ST. LOUIS, June 14, 1899. }

Pig Iron.—The interest shown by the trade becomes more keen each day. Telegraph messages come thick and fast and the use of postage stamps is found extravagant. Failure to accept by wire a quotation cost a certain buyer just \$1 a ton for the day his letter consumed in reaching maker's hands. Press reports received here to-day contained an apparent error in placing No. 1 Foundry at \$13.25 per ton, Birmingham. It is exceedingly doubtful whether it could be bought at our quotations below, which represent \$14.25, Birmingham. Sales were made here last week covering No. 1 Foundry for later delivery at \$15, Birmingham. We note sales of Lake Superior Charcoal Iron at \$20, Chicago, and there is no assurance that the transaction could be repeated. On June 12 Ohio Strong Hanging Rock No. 1 Foundry was quoted at \$21, East St. Louis. A prominent member of the Pig Iron trade correctly represents the condition of things in saying: "Regarding prices we find great irregularity. Ordinarily we can keep within 25c. per ton of the market, but now each seller seems to work without reference to other factors and every transaction meets with individual treatment. Our quotations below fairly represent the market to-day. On June 21 an additional advance of 50c. per ton will take place in freight rates of Southern roads, making a total advance of \$1 per ton in freights since January 1. It is not unlikely that Northern roads will get into line with an advance, and as it is we are rapidly nearing the \$20 mark. We quote for cash, f.o.b. St. Louis, as follows:

Southern, No. 1 Foundry.....	\$17.25 to \$17.50
Southern, No. 2 Foundry.....	16.75 to 17.00
Southern, No. 3 Foundry.....	16.25 to 16.50
No. 1 Soft.....	17.25 to 17.50
No. 2 Soft.....	16.75 to 17.00
Gray Forge.....	14.75 to 15.00
Mottled.....	14.50 to 14.75

Bar Iron.—No change is noted in prices this week. Some extensive sales have been reported as having been made. Car manufacturers have considerable work in hand and the outlook for new business continues favorable. It is apparent that options on some tip top Bar mills have not yet been taken up and that invoices are still being rendered under their own names. Bar Iron in car lots may be placed at 1.80c. to 1.90c., base, East St. Louis, and jobbers find excellent business on base of 2.10c., full extras, from stock.

Rails and Track Supplies.—Orders are coming in well for general railway supplies. The variety of purchases is great and few orders seem to call for the same goods. It would seem that storehouses are filling up broken stock and that considerable activity prevails in transportation circles. Prices remain the same and we quote as follows: Splice Bars, 2c.; Track Bolts, with Square Nuts, 3c.; with Hexagon Nuts, 3.15c.; Spikes seem to vary from 2.25c. to 2.50c.; Iron and Steel Links and Pins, 2.20c.

Pig Lead.—Definite prices are not found to-day, but market is considered firm at 4.25c. to 4.30c. Sales have been reported as having been made at a few cents' advance. Action is slight and no snap to market. No

change has occurred in price of Lead Ore, which was on the market at \$26 per 1000 lbs.

Spelter.—At this season Spelter is in easier demand. The heat prevents activity of labor at Spelter users' mills and annual repairs are usually made during shut down at this period. Business conditions may otherwise dictate this year, but there is not strength of buying and smelters are not disposed to lay in stocks of Ore. There was a decided slump in price of Spelter during the week, accounted for, it is said, by several smaller concerns weakening under the lack of business and offering Spelter at 6c. The market broke in consequence and to-day it is quoted at 6c. to 6.5c. It is said that lower prices were paid for Zinc Ore to-day and that the top price was \$46 per ton, at Joplin.

Zinc Ore.—A new basing price of \$43 per ton on 60 per cent. assay Ore was named June 13 by the Miners' Association. This reduction was made on account of lower prices of Spelter in the St. Louis market. Advices say that the fight between miners and smelters is on. The \$43 base is not kindly taken by smelters, who confined bids to \$42, which were refused. It is given out that next week not over \$39 will be offered by smelters, and the result is already seen this week in few sales being made by miners, and those occurring only by producers not in the association. It is claimed that the association have money enough on hand to hold out 90 days, and they propose to fight to the finish. There is a well developed plan to ship large amounts of Ore to Europe at the association base. At scale prices, it is said, miners have favored home trade. There has been a 25c. per ton assessment set aside by the association, and it is now said that the fund on hand will allow a loan advance of \$25 per ton to producers needing money for operating. Direct smelter representatives from Germany will be in New York this week, and they propose to buy largely in the Joplin district. The association members seem strongly intrenched, and the large profits they have made give them a standing hard to undermine.

Pittsburgh.

Office of The Iron Age, Hamilton Building, {
PITTSBURGH, June 14, 1899. }

(By Telegraph.)

Pig Iron.—In the past week there have been sales of Bessemer Pig at the full price of \$18, Valley furnace, deliveries running over last six months of the year. This price is equal to \$18.65, Pittsburgh, and after July 1 to \$18.75. Two large consumers of Bessemer Pig are said to be depleting stocks very fast, and are expected to come into the market to buy before July 1. Should either concern succeed in picking up some Iron, it would probably have the effect of further advancing prices. The situation is very strong, and with a probability that Iron will go into actual consumption as fast as made. It does not seem that prices will be any lower this year. Gray Forge is in active demand and prices strong. It has sold in the past week at \$15.50, Valley furnace, while some furnaces quote higher prices. Foundry Irons are also strong, and there have been sales of good sized lots of No. 2 Foundry at \$16.50 to \$16.75, Pittsburgh. We quote Bessemer at \$17.85 to \$18, Valley furnace, Gray Forge, \$15.50 to \$16, Valley furnace; No. 2 Foundry, \$16.50 to \$16.75; Gray Forge, \$16.25; Bessemer, \$18.50 to \$18.65, all f.o.b. Pittsburgh. We note a sale of 3000 tons of Bessemer for foundry use, equal deliveries over last half at \$18, Valley furnace, and a sale of 1500 tons at \$18.50, Pittsburgh, equal to \$17.85, Valley. There have been several small sales of Bessemer in lots ranging from 300 to 500 tons at about \$18, Valley furnace. We also note a sale of 600 tons of Gray Forge at \$15.50, Valley furnace, and a sale of 400 tons at \$16.25, Pittsburgh, prompt delivery. Also a sale of 1000 tons of No. 2 Foundry at \$16.65, Pittsburgh.

Billets.—The market is very strong and Steel has sold in the past week at very close to \$32, Pittsburgh. Last week there was a sale of 1500 tons of Slabs at about \$31.25, Pittsburgh, but prices seem higher to-day. We quote at \$31.50 to \$32, Pittsburgh.

Sheet Bars.—The quotation of \$30.75 for Sheet Bars at maker's mill in this report last week should have read \$31.50. Prices are higher to-day, and we quote \$32 to \$32.50, maker's mill. A sale of 3000 tons of Sheet Bars is

reported at about \$32, maker's mill, deliveries over third quarter.

Muck Bar.—There is a heavy demand for Muck Bar from the Skelp and Bar mills, and there have been some good sized transactions in the past week. We note a sale of about 5000 tons on a puddling basis. Another sale of 2000 tons at a price reported to be \$34.50, Pittsburgh. Muck Bars are exceedingly scarce and sellers can get almost any price they ask.

Spelter.—The market is dull and weak, and prime Western grades are offered at 6c., Pittsburgh. It is likely prices will go lower.

(By Mail.)

The Iron trade has shown no important change in the past week. Prices on everything have held their own, with the single exception of Spelter, which is off considerably, the best grades being offered in this market to-day at 6.15c. delivered. Bessemer Iron in small lots, running over last half of the year, has sold at \$17.85 to \$18, Valley furnace, equal to \$18.50 and \$18.65, Pittsburgh. Rates on Pig Iron from the Valleys to Pittsburgh, which are now 65c., will be advanced to 75c. on July 1. Billets have sold in small lots at \$31 to \$31.50, Pittsburgh, but there is not a great deal of demand. Rails have shown an advance of about \$2 a ton, and are now quoted at \$27 to \$28, depending on the section. In Finished Material prices are unchanged from last week, and tonnage is holding up remarkably well. The wage scales are now under consideration, and already settlements of the puddling and finishing mills scales, and Tin house labor scale, have been arranged and signed. It is not anticipated that there will be any serious trouble in arriving at a settlement of the Sheet and Tin Plate scales, which come up this week. The whole situation is strong, but it is not believed prices will go any higher, largely for the reason that July and August are usually dull months and neither buyer nor seller are as aggressive as in other months of the year.

Ferromanganese.—The Carnegie Steel Company, the only local producer, continues to quote 80 per cent. Ferro at \$85, Pittsburgh.

Plates.—The Plate market is unchanged from last week. Prices are very strong, and all the mills are sold up for periods ranging from three to six months. Where prompt Plates are had, top prices must be paid. We quote: Tank, ¼-inch and heavier, 2.30c. to 2.50c., depending on delivery wanted; Shell, 2.40c. to 2.50c.; Flange, 2.50c. to 2.60c.; Marine, 2.65c. to 2.75c.; Fire Box Medium, 2.75c.; best quality, 3c. to 3.25c., f.o.b. at mill.

Structural Material.—Two Eastern contracts, involving about 5000 tons, are reported taken by a local mill. There is a good demand for Structural Shapes, but the mills are largely employed on old contracts at prices considerably lower than are now ruling. We quote: Beams and Channels, 15-inch and under, 1.75c.; 18 to 24 inch, 1.85c.; Angles over 3 inches and up to 6 x 6 inches, 1.75c.; Angles, 2½ x 2¼ inches and smaller, 2.10c.; Bulb Angles and Deck Beams, 2.05c.; Zees, 1.75c.; Grooved Rolled Plates, 2c.; Tees, 1.80c., all f.o.b. Pittsburgh.

Rails.—The local mills have advanced about \$2, and we quote Rails at \$27 for Light Sections, and \$28 for Heavy Sections.

Iron and Steel Skelp.—Skelp continues very scarce and prompt deliveries bring very high prices. We quote Grooved Iron and Steel Skelp at 2.05c. to 2.15c.; Sheared Iron and Steel Skelp, 2.20c. to 2.35c., depending on the size and deliveries. Very narrow or very wide sizes of Skelp, for prompt delivery, have sold at considerably higher prices than are quoted above.

Sheets.—The Sheet trade continues in the same condition noted in this report last week. The movement to consolidate the Sheet mills has been dropped for the time being, but may be taken up again along about October. In certain quarters the impression prevails that the consolidation will not be put through. There is a good demand for both Black and Galvanized Sheets, and one of the best features of the market is, we are advised, that Sheets bought are going into actual consumption. We continue to quote No. 27 Black Sheets, box annealed, one pass through cold rolls, at 2.85c. to 2.90c.; No. 28, 2.95c. to 3c. We quote Galvanized Sheets at 70 and 10 in large lots, with 15c. freight allowance. Jobbers quoting on small lots of both Black and Galvanized ask considerably higher prices.

Merchant Steel.—There is nothing of interest to report. Owing to the fact that July 1 is close at hand, when stock taking begins, demand has fallen off considerably, but prices are strong. It is expected that July

and August may be rather quiet, as far as demand is concerned. Prices are unchanged, and we quote: Soft Open Hearth Machinery Steel, 2.75c.; Common Spring Steel, 2.75c.; crucible analysis, 3c.; Cant Hook Steel, Open Hearth, 3.50c.; Wedge Steel, Open Hearth, 3.50c.; Tire Steel, $\frac{3}{4}$ x 3-16 inch and heavier, 2.75c.; Plow Slabs, 3-16 inch and heavier, 4 inches wide and over; Bessemer and Open Hearth, 2.75c.; Lay Steel, rolled, 3.25c.; hammered, 4c.; Tool Steel, 5½c. to 14c., depending on quality, all f.o.b. Pittsburgh, 30 days.

Bars.—The market on both Iron and Steel Bars is strong, and there is an exceptionally heavy demand. Agricultural Implement makers have recently placed orders for considerable tonnage, and a good deal more business of this nature is pending. There is also a good demand from car builders, specifications on old contracts coming in very freely, while a few orders for new tonnage are being placed. The policy of the Republic Iron & Steel Company as to prices is now more defined, and we quote Common Iron Bars at 1.75c. to 1.80c. in carload lots, f.o.b. Valley. We quote Steel Bars at 2c. to 2.10c. at mill, f.o.b. Pittsburgh. There have been some good sized contracts for Steel Bars placed the past week, and at full prices.

Pipes and Tubes.—As noted in this report last week, manufacturers have fixed the price of Merchant Pipe at 50, two 10's and 5 in carloads, delivered, the price for less than carloads being 50 and two 19's, f.o.b. maker's mill. We understand that jobbers in Chicago, Boston and elsewhere have established prices somewhat higher. There is a good demand for Merchant Pipe, and all the mills are sold considerably ahead. Last week a further advance in price of Casing was made, and we now quote: Screw and Socket Joint, 3¼-inch and larger, 40 per cent.; Inserted Joint, 35 per cent., with an extra 5 per cent. to dealers. There is a good demand for Boiler Tubes, and it is predicted that this fall there will be the greatest shortage in the supply of Boiler Tubes the trade has ever known. Another advance in prices is expected before long. We quote: 1¼ to 1½ inch Iron and Steel, 40 per cent. off list; 1½ to 2½ inch, Iron, 50 per cent.; Steel, 55 per cent.; 2½-inch and larger, Iron, 55 per cent.; Steel, 57½ per cent., with an extra 5 per cent. to dealers.

Iron and Steel Scrap.—There have been some large transactions recently in Old Iron Rails, and we quote a sale of 1000 tons at \$21, f.o.b. Valley. Heavy Melting stock is quoted at about \$18.50, Pittsburgh. Prices on all kinds of Old Material are very strong.

Connellsville Coke.—Last week there were 16,612 ovens in the Connellsville region active and 2041 idle, the estimated production for the week being 174,343 tons. Shipments of Furnace and Foundry Coke are very heavy, and practically the entire output of the region is under contract. Consumers are covered, and there is not much inquiry. We quote Standard Connellsville Furnace Coke at \$2.15 and Foundry Coke at \$2.15 to dealers, and \$2.30 to consumers, in tons of 2000 pounds at oven. Some brands of Furnace and Foundry Coke, made outside the Connellsville region proper, are offered at lower prices.

The offices of the Damascus Steel Company have been removed from the Mellon Bank Building to room 13, Garrison Building, Third avenue and Wood street. This concern are very busy, and are having a large demand for their Damascus brand of Tool Steel.

Birmingham.

BIRMINGHAM, ALA., June 12, 1899.

There was an increased demand for Iron the past week. It can be said to have been a fine demand. It covered deliveries largely for first half of 1900. There was sprinkled with it a first rate call for spot and nearby deliveries, which did not meet encouragement from sellers. Some can't fill such orders, and those who can do not care to do so except in a very limited way. There was little or no difficulty about prices, as this market has not set the pace in this regard, but has been follower of the Northern furnaces. The leading interest unloaded 40,000 tons of the Basic and Gray Forge grades for 1900 deliveries. The sellers of spot and nearby delivery are turning down orders of magnitude and giving preference to limited orders, with the view of securing wider distribution. There is such scarcity in Gray Forge, No. 2 and the Softs that buyers take what they can get as a substitute and trust to their own ingenuity in mixing to obtain desired results.

The market opened with a sale of 10,000 tons Basic Iron at \$13 and 5000 tons Gray Forge at \$12. This was followed by other sales of round lots on same basis for long delivery until they aggregated 40,000 tons. Quotations here are entirely conservative. Gray Forge is now \$12.50; No. 3 Foundry, \$13; No. 2 Foundry, \$13.50, and No. 1 Foundry, \$14. The Softs in price correspond to that of Nos. 1 and 2 Foundry. Some of these quotations

are nominal, simply because the grades can't be supplied. The furnaces are full of "hurry" requests on maturing contracts. It is a matter of remark that the buyers of long forward deliveries are those who from their position in the Iron world have unusual and special facilities for judging the true situation. The same parties who fought the first advance to \$10 and predicted a crash in prices are still prophesying disaster, while gulping their medicine of prevailing values. As an evidence of confidence your correspondent was informed by a member of an Ohio furnace interest that they were offered by a Pennsylvania consumer \$17.85 for their output of Bessemer Pig—about 50,000 tons—for the first half of next year. Of course this isn't calculated to depress this market, and the opinion is general that \$15 for No. 2 Foundry is certain to prevail. Shipments, it is hardly necessary to state, are as free as facilities permit both from furnace and warrant yards. The latter show large depletion of stocks.

At Ensley the preliminary arrangements are in progress that precede the building of a new stack. Upon its completion, allowing for accidents, the plant there can be relied upon to have a battery of four furnaces always in operation, and that will be necessary to meet the requirements of the situation there. Additional blast power is being added to the plant in anticipation of its necessity and the electric plant is being increased. These indicate an increased output. There is increased effort being made to hasten the time when the Steel mill will be completed, and those who have important contracts for machinery, &c., for it are being urged to hasten delivery or completion. And the same energy is displayed at the Rod and Nail mill. Each declares it will be ready for business before the other. September is now set as the time when both will be ready for business.

The American Radiator Company of Chicago have had a representative here for some time to examine the inducements offered for locating here a branch of their business. From a reliable source it is learned that if the railroads will give them an acceptable freight classification for their finished output they will locate a plant here.

A representative of a large Iron firm in Ohio is now here with a view of locating a large machine and foundry shop to manufacture, among other things, blowing engines and turning out various kinds of machinery which have heretofore been monopolized by Northern shops. The firm are wealthy. They ask no aid financially or otherwise. All they want is to be satisfied of the prospects for success.

There is a fair interest being manifested in Brown Ore lands and several Birmingham parties have the past week been prospecting in the Anniston district. A local operator has secured the cream of this kind of property at Bluffton, near here, and will proceed at once to develop it. The Birmingham owner of the Russellville Ore fields is sparing neither money nor energy in their development. From the Tecumseh furnace tract 500 cars were shipped here in May, and parties at Jenifer have contracted with one furnace interest here to supply 300 tons per day. So one can guess that certain grades of Iron will be a specialty for a while any way.

The report of the Car Service Association for May is a most flattering one. The total movement of cars for the five months of this year was 134,422, as against 119,552 last year. The difference is 14,872 in favor of this year. For May, 1899, the number of cars handled was 29,211, as against 22,295 in May, 1898, showing a gain for this year of 6916 cars in May. We have certainly been riding on the crest of the waves. May we always avoid the trough of the sea.

The Woodstock furnace property will, if things go right, be leased to-day to parties who will operate it. The lease is ready for their signature. The Bay State furnace at Fort Payne has been sold to parties who, it is said, will have it in operation as soon as possible. Repairs on the Talladega furnace are in progress and in 60 to 90 days that will be in operation.

(By Telegraph.)

Iron freight rates to Ohio and Mississippi River territory have been advanced 50c. per ton, taking effect this month. This is equivalent to that much advance in Iron. Business is still offering on basis of \$13.50 for No. 2 Foundry, with only a fair portion accepted. Another strong consolidation in Iron circles affecting large interests in Alabama is being engineered, with every prospect of a successful outcome.

The plant of the New Castle Engineering Works, located at New Castle, Pa., has recently been taken over by the second mortgage bondholders, who are offering it for sale. This plant is equipped to turn out machine and boiler work, and, being located in the thriving town of New Castle, is insured a good deal of local work. The plant is referred to as being in good condition, having been kept in steady operation right along. The chairman of the committee of second mortgage bondholders is George B. Herenden of Wilmette, Chicago.

The English Markets.

Summary.—Business in Pig Iron has been steadier during the past week and there has been an absence of the speculative buying, except in the Middlesbrough district, which has of late hampered legitimate trading. Demand for Manufactured Iron is strong, while all branches of the Steel industry are fully employed, and the high prices recently prevailing are not only fully maintained but a hardening tendency is noticeable in some districts, notwithstanding that the amount of new work coming forward has in some cases shown a slight falling off. Engineers are well supplied with work and the shipbuilding industry is likewise active. Foreign trade continues in a healthy state, with work plentiful and prices firm.

Pig Iron.—The Middlesbrough market has again been disturbed this week, and prices have been forced up considerably for warrants. The effect has been, as usual, to check business, the price of warrants having touched 59 shillings 8 pence, or 3 shillings higher than last week. In Hematite also prices have been disturbed, but not to such an extent as in G. M. B's. Prices for Ore have also risen and this, combined with the high quotation for Coke, hampers operators who are dependent for their supplies on outside merchants. In and around Barrow the demand for Hematite is stronger than ever, with the result that prices have increased and as much as 69 shillings per ton can now be obtained for mixed numbers of Bessemer. A fair business has been done on the Lancashire market, but there is very little iron to be disposed of, and the anxiety evinced by customers, who in view of the recent increase in prices are anxious to place contracts, is not likely to be satisfied, as quotations are hardening rapidly. Makers in South Staffordshire are limiting their engagements, and the upward rise in prices is such as to afford them a strong position and substantial profits. In Yorkshire trade is brisk and quotations readily maintained.

Manufactured Iron and Steel.—A strong and steady business is reported from Staffordshire and Yorkshire for manufactured iron. Orders are increasing and prices, particularly in the former district, exhibit a marked upward tendency. The returns of the past two months show a selling price of 4 shillings and 5 pence per ton higher than during the preceding quarter, and are a striking testimonial to the strength of trade. On the other hand a slight falling off has been experienced as regards Steel orders, although not to the extent of affecting prices. The event of the week has been in Glasgow, where Neilson Brothers on Friday summoned a meeting of their creditors. The firm are the largest dealers in Ship Plates in Scotland and are heavily committed forward at low rates. They have all along taken the lead in Scotch Iron and Steel, being the largest exporters. The total liabilities of the firm are not yet known, but the books have been placed in the hands of accountants. The formation of several new companies is announced and prospects are regarded as promising in all departments of trade, the orders in hand being sufficient to insure activity for some months ahead. Part of Lysaght's works at Wolverhampton have been closed this week and the men removed to Newport.

Engineering and Shipbuilding.—Locomotive engineers are very busy, so much so that they have had in many instances to refuse fresh work. There is a brisk demand for electric installations and for miscellaneous plant and machinery, among which colliery appliances figure largely. Shipbuilders are busy, particularly in Belfast, at which center it is stated that ten of the largest vessels in the world, representing 100,000 tons, are being fitted up or overhauled. Slips are well filled, but not much new work has been given out of late.

Comparison of Prices.—The annexed table shows the current prices compared with those of last week, and of the corresponding period last year:

	June 2, 1899.	May 26, 1899.	June 3, 1898.
Iron Ore—	s. d.	s. d.	s. d.
Rubio, Middlesbrough.....	16 6	15 9	15 6
Rubio, Cardiff.....	15 0	14 9	15 6
Pottery Mine, North Staffordshire..	14 6	14 6	12 6
Hematite, West Coast (at mines)....	13 6	13 6	11 6
Pig Iron—			
No. 3 Foundry, Middlesbrough.....	59 6	56 6	40 9
Warrants, Middlesbrough.....	59 2	56 9	40 10
Scotch Warrants, Glasgow.....	65 8½	63 8	47 0
Hematite Warrants, West Coast.....	69 3½	66 6	51 0
Cold Blast (Foundry), South Staffordshire.....	110 0	105 0	105 0
Welsh Hematite, Cardiff.....	68 0	65 0	53 0
Manufactured Iron and Steel—	£. s. d.	£. s. d.	£. s. d.
Marked Bars, South Staffordshire...	8 10 0	8 10 0	7 10 0
Common Bars, South Staffordshire..	7 0 0	7 0 0	6 0 0
Steel Rails, Middlesbrough.....	5 2 6	5 2 6	4 10 0
Steel Rails, West Coast.....	5 2 6	5 2 6	4 10 0
Steel Rails, Cardiff.....	5 5 0	5 5 0	4 12 6
Steel Angles (eng.), Middlesbrough...	7 0 0	7 0 0	5 13 9
Steel Angles (eng.), Glasgow.....	7 0 0	7 0 0	5 12 6
Steel Plates (ship), Middlesbrough...	7 2 6	7 2 6	5 17 6
Steel Plates (ship), Glasgow.....	7 2 6	7 2 6	5 17 6
Tin Plates, Bessemer I.C. Cokes, South Wales.....	s. d.	s. d.	s. d.
	12 9	12 9	10 0

New York.

Office of *The Iron Age*, 232-238 William street, }
NEW YORK, June 14, 1899. }

Pig Iron.—The market is unsettled by frequent advances. Some sellers report a fair amount of business at the advance; others note that buyers are very conservative and are disposed to await developments. It is understood that one large block of Warrants, 20,000 tons, was sold for delivery next year at private terms, the furnace to put the iron into yard at a future time. We quote as follows: Lehigh and Schuylkill Irons, No. 1 Foundry, \$17.50 to \$18; No. 2 X, \$16.75 to \$17.25; No. 2 Soft, \$16.25 to \$16.75; No. 2 Plain, \$16.50 to \$16.75, and Gray Forge, \$16 to \$16.50. Southern Brands are quoted: No. 1 Foundry, \$17.25 to \$17.50; No. 2 Foundry, \$17 to \$17.25; No. 1 Soft, \$16.25 to \$16.50; No. 2, \$16 to \$16.50, and Gray Forge, \$15.25 to \$15.50.

Cast Iron Pipe.—Aside from small orders, including one for 1000 tons for Livermore Falls, nothing has been done. An inquiry has been received for a few thousand tons for Valparaiso, but the specifications are extraordinary, and there is little interest in the export trade.

Steel Rails.—For what little is coming out in the way of orders higher prices are asked, quotations being \$27 to \$28. at Eastern mill. Specifications for about 7000 tons for Japan have come to hand, but it is not believed that any business is possible.

Track Fastenings.—We quote Angle Bars 1.75c. to 1.80c.; Spikes, 1.80c. to 1.90c., and Bolts and Nuts, 2.25c. to 2.30c.

Structural Material.—There is a fair amount of business and there are some interesting orders in the market, among them one for about 3000 tons for foreign account for delivery next year. It is expected that the Quebec Bridge will come up for settlement toward the end of this month. There is also an order for a number of bridges for Japan. In Plates an order for 5000 tons for next year's delivery is noted. Bars have been advancing sharply during the past week. We quote as follows: Beams, 1.90c. to 1.95c.; Angles, 1.90c. to 1.95c.; Universal Mill Plates, 2.45c. to 2.50c.; Tees, 1.95c. to 2c.; Channels, 1.90c. to 1.95c.; Steel Plates are 2.45c. to 2.50c. for Tank, 2.55c. to 2.60c. for Shell, 2.65c. to 2.75c. for Flange, 2.80c. to 2.90c. for Fire Box, 2.90c. to 3c. for Locomotive Fire Box, on dock. Refined Bars are 1.85c. to 1.90c. and Common Bars are 1.65c. to 1.70c., on dock. Soft Steel Bars, 1.90c. to 2c.; Steel Axles, 2c. to 2.10c.; Scrap Axles, 1.90c. to 2c.; Links and Pins, 1.75c. to 1.80c.; Hoops, 2c., at mill; Best Iron Boiler Rivets, 2.50c. to 2.75c., delivered; Steel Structural Rivets, 2c. to 2.10c.

The American Steel Hoop Company, manufacturers of Hoops, Cotton Ties, Bars, Skelp, &c., have established an Eastern office in the Empire Building, 71 Broadway. Samuel Siddall of the Union Iron & Steel Company and sales agent of the American Steel Hoop Company will be in charge. He will be assisted by F. Wayland-Smith. The American Steel Hoop Company have also established a New England office at 8 Oliver street, Boston, W. L. Horne being in charge.

The New York Machinery Market.

Office of *The Iron Age*, 232-238 William street, }
NEW YORK, June 14, 1899. }

In another column we print a statement emanating from an official source telling of the formation of the Niles-Bement-Pond Company, or the consolidation of the interests of the Niles Tool Works Company, the Pond Machine Tool Company, Bement, Miles & Co. and the Philadelphia Engineering Works.

Two fairly large transactions in machine tools were reported during the last week. The purchases were made by the Ingersoll-Sergeant Company and the New York Air Brake Company. The former company purchased upward of \$15,000 worth of Reed lathes, Warner & Swasey screw machines and other tools for installation in their new shops which are building at Easton, Pa. Manning, Maxwell & Moore are said to have sold the bulk of the material. The balance of the equipment for the new Ingersoll-Sergeant shops was purchased several months ago, the deal running up in value to something like \$40,000.

The New York Air Brake Company have been purchasing considerable new machinery for some months past, and it is said that they are still frequently stepping into the market for nice bits of tool machinery. The most recent purchase of considerable size, which was reported last week, was of 15 special Bullard lathes and 10 lathes built by F. E. Reed & Co.

A meeting will be held in this city within the next few days for the purpose of attempting a consolidation

of the foundry supply merchants and manufacturers. A representative dealer in foundry materials who has been approached by the promoters of the scheme stated that he had serious doubts as to the success of the project, although he believed that arrangements would be made for the regulation of the price of bituminous coal, better known by foundrymen as sea coal.

The Manhattan Railroad Company have sent out specifications for engines to be installed in the proposed power plant for operating the elevated roads with electricity. The specifications call for eight units of 7000 horse-power each. Bids for the boilers for this plant will also be received during the latter portion of this month.

J. & F. Brown, manufacturers of pulleys, shafting and power transmission machinery, Elizabethport, N. J., have purchased the interests of M. C. Cogswell in the Cogswell grinding mill. The former concern previously built the mill for Mr. Cogswell.

Extensive additions are being built to the plant of the Hammond Typewriter Company, 537 East Sixty-ninth street, New York. Contracts are now being placed for the machinery with which the new building will be equipped. J. & F. Brown have received a contract for the power transmission machinery.

A machine shop is being installed at the Polytechnic Institute, Brooklyn. The institute is located on Livingston street. Dr. Samuel Sheldon is in charge of the work.

We understand that the plans for the buildings for the new machine shop to replace the one destroyed by fire at the Brooklyn Navy Yard have been completed.

Plans are also said to be under way for a large central electric lighting and power station for the Brooklyn Navy Yard. It is said that two distinct sets of generating machinery will be installed. One will be used exclusively for lighting the various buildings in the yard, and the other for furnishing the electric power which will be used for operating the machinery throughout the various buildings. Specifications have not as yet been issued for the engines and generating machinery, but a large plant will be required.

Final shipments are being made of the machinery for the equipment of the new power house which is being constructed for the Queens Borough Electric Light & Power Company at Far Rockaway, Long Island. Sanderson & Porter, 31 Nassau street, are the general contractors for the work. The power house is being erected on the water front at Jamaica Bay. The equipment consists of three 250 horse-power Babcox & Wilcox water tube boilers; Green economizers built by the Fuel Economizer Company of Matteawan, N. Y.; American Wheelock engines direct connected to 300-kw. General Electric 2-phase D. C. generators of rotary field type; General Electric exciters direct connected to Westinghouse compound engines; two 120-light Bush arc dynamos, run by Payne engines; Westinghouse, Church, Kerr & Co. have been awarded the contract for the piping. The current for an extension for the Long Island Railroad is supplied through a bank of static transformers and a 200-kw. rotary transformer to be installed by the Westinghouse Electric & Mfg. Company.

A contract has been awarded to the Heine Safety Boiler Company of 11 Broadway and St. Louis for three 250 horse-power water tube boilers by the East Jersey Water Company. These boilers are to be installed in addition to two others of equal size which the Heine Company are installing at the new pumping station which the East Jersey Company are building at Little Falls, N. J. The contract for the pumping engines for this plant was awarded to the Dixon Mfg. Company of Scranton, Pa., and they are being built from special blue prints brought from Germany. The plant of the Albany Boiler Works, which was formerly controlled by the Heine Safety Boiler Company, was destroyed by fire recently. Within 24 hours of the fire the Heine officials had purchased from Thos. S. Southerland the plant of the Franklin Iron Works, located at Green Island, near Troy, N. Y., and within a week this plant was turning out Heine boilers. A splendid equipment was found at the Franklin Iron Works, and, together with a line of pneumatic tools, which was purchased immediately, a boiler shop was soon arranged. Further purchases of machinery are now being made for completing the remodeling of the plant.

It is said that machine shops will be added to the plants of both the Chester Steel Casting Company and the solid Steel Casting Company, both of Chester, Pa. The latter concern are now considering various bids for machine tools.

The Watson-Stillman Company of 204 East Forty-third street, New York, have just received an order from the Government for furnishing a number of 12-inch Isham shells.

J. Trowbridge Bailey, 141 Broadway, is negotiating for the purchase of ore pockets, conveying machinery and small engines for equipping the property of the Orinoco Iron Company in South America.

Hamilton & McClave, 141 Broadway, have received an order from the Wyoming Electric Light, Heat & Power Company for a 500 horse-power simple automatic McEwen engine to be installed at a plant in Wilkes-Barre, Pa. As an example of quick delivery Mr. McClave cited that on Thursday evening last he received an order from the Coney Island Athletic Club for a 200-kilowatt generator, and that it was erected and running, furnishing light for the pugilistic event of Friday night. The generator was of the Thomson-Ryan type.

An order has been booked by the Link Belt Engineering Company of Nicetown, Philadelphia, and 49 Dey street, New York, for log hauling and elevating apparatus and complete electrical appliance for operating same. The order was received from the Russian Government and the material will be used for hauling logs from the river to the cars of the new Siberian road. There are four equipments to be erected at various points along the road. This company also received an order for a large locomotive coaling and ashes receiving station from the Lehigh Valley Railroad, to be erected at South Plainfield, N. J., and an order from the Fitchburg Railroad of Boston for nine freight elevators for conveying material from the steamers of the Wilson-Furness-Neyland Line to storehouses located at the company's piers.

Shipment is being made by the Exporters' Association of America of 20 locomotives built by the Richmond Locomotive Works to the Swedish Railroad, Sweden. The engines are now being loaded on the steamer "Alexandria" at Newport News, Va. The vessel will sail on Saturday next.

Machinery is being purchased by the Kinetic Mfg. Company of 27 William street, New York, for the equipment of additions which are being built to the company's plant in Delaware.

An order for 21 pulverizing machines was received by the West Pulverizing Machine Company, 220 Broadway, from the Birmingham Cement Company of Birmingham, Ala.

The Cramp Engine & Ship Building Company report the receipt of an order for two large liners from the International Navigation Company.

Metal Market.

Office of *The Iron Age*, 232-238 William street, New York, June 14, 1899.

Tin.—The market here during the week under review has advanced a fraction, but closed dull to-day at 25.40c. to 25.70c. for spot and June. Business is not active, and the buying of consumers is rather on a hand to mouth basis. The heavy fluctuations of the London market throughout the week failed to influence this market, as has been the case in the past. London fluctuated and closed to-day £117 for spot and £117 17s. 6d. for futures.

Copper.—There has been no change in this market, and conditions have been very much the same throughout the last week as they have been for some weeks past, a nominal market with very little doing. Prices are more or less nominal, Lake being quoted 18½c. to 18¾c. for spot, but near futures are obtainable at 18c. Electrolytic Cakes, Wire Bars and Ingots are quoted at 17½c., and Casting stock is still 17¼c. Exports have been very light, and for the first 13 days of this month amount to but 2419 tons. The European market is dull, and London closes to-day £75 15s. for spot, and £75 16s. 3d. for three months' futures. Best selected has advanced a full pound and is quoted to-day £80.

Pig Lead—Is somewhat firmer to-day, and more business has been done in prompt shipments from the West. It is said that the figure on this business was 4.45c., but at the close to-day buying at this figure is difficult. We quote 4.45c. to 4.50c. The stiff position which has been assumed by the market, it is said, is due to the shutting down of some of the large refineries in Colorado, due to labor troubles, caused by the inauguration of the eight hour law, which will go into effect to-morrow. It is said that the Omaha Grant Works, at Denver, have been shut down, owing to the position taken by the strikers in defiance of the new eight-hour ruling. The St. Louis market is quiet and unchanged. London is also without change, and the quotation to-day is £14 5s., which is the same as last week.

Spelter—Has declined rapidly and spot to-day is not bringing more than 6¼c., while shipments from the West are freely offered at 6c. The demand here is said to be very light. St. Louis market is easy at 6c., this being the closing telegram to-day. The Ore market is practically unchanged, but very little buying is taking place and stocks are accumulating rapidly. It is predicted that Ores will be down to a \$40 basis by the latter part of this week. London has declined 10 shillings and comes at the close to-day £27.

QUOTATIONS OF IRON STOCKS DURING THE WEEK ENDING JUNE 14, 1899.

Capl Issued.		Sales.	Thursday.	Friday.	Saturday.	Monday.	Tuesday.	Wednesday
\$47,100,000	Am. S. & W., Common.....	211,650	59 -60%	58 1/2-62	60 1/2-62 1/2	60 1/2-63 1/2	61 -63 1/2	60 1/2-62
38,150,000	Am. S. & W., Pref. (7% Cu.)....	8,445	-96	95 1/2-96	-96	95 1/2-96 1/2	96 -96 1/2	96 -96 1/2
9,250,000	Col. Fuel and Iron.....	8,175	44 1/2-45 1/2	44 1/2-45	45 -46	44 1/2-46	45 1/2-46 1/2	43 1/2-45 1/2
46,484,300	Federal Steel, Common.....	182,100	60 -61 1/2	60 1/2-61 1/2	61 1/2-62 1/2	62 1/2-65 1/2	64 -66 1/2	63 1/2-65 1/2
53,283,500	Federal Steel, Pref. (6% Non-Cu.)	29,315	82 -82 1/2	82 1/2-83	82 1/2-83 1/2	82 1/2-83 1/2	83 1/2-84 1/2	83 1/2-84 1/2
20,000,000	Tennessee Coal and Iron.....	33,445	63 1/2-65	63 1/2-64 1/2	63 1/2-64 1/2	63 1/2-65	62 1/2-64 1/2	63 -64
7,974,550	Cambria Iron, Phila.....	25				44 1/2		
16,000,000	Cambria, Steel***	18,630	20 1/2-21 1/2	21 1/2-21 1/2	21 1/2-21 1/2	21 -21 1/2	21 -21 1/2	21 -21 1/2
5,000,000	Penna. Common, Phila.....	2,171			74 1/2-76	75 -81	83 1/2-85	84 1/2-87
1,500,000	Penna. Pref., Phila.....	184				80 -86	-87	
28,000,000	Tin Plate Common, New York..	11,895	37 1/2-38 1/2	36 1/2-37 1/2	36 1/2-37	37 1/2-38 1/2	38 1/2-40	38 1/2-39 1/2
18,000,000	Tin Plate Pref., N. Y. (7% Cu.)..	1,350	85 1/2-86		84 1/2-85	-84 1/2	84 1/2-85	-84 1/2
28,000,000	Tin Plate Com., Chic.....	1,800	37 1/2-37 1/2	36 1/2-37		37 1/2-38 1/2	38 1/2-39 1/2	38 1/2-39
18,000,000	Tin Plate Pref., Chic. (7% Cu.)..	3,073	84 1/2-85 1/2	84 1/2-85	84 1/2-84 1/2	-85	84 1/2-86	85 -86
32,000,000	National Steel Common, Chic..	7,745	48 1/2-48 1/2	48 -49	48 1/2-48 1/2	49 -49 1/2	50 -53 1/2	51 1/2-52 1/2
27,000,000	National Steel Pref., Chic. (7% Cu)	4,387	90 -91	90 -91		90 1/2-92	92 -92 1/2	91 1/2-91 1/2
32,000,000	National Steel, Common, N. Y..	18,020	48 1/2-49	48 -49	-49	49 -50	50 -53 1/2	50 1/2-52 1/2
27,000,000	Nat'l Steel, Pref., N. Y., (7% Cu.)	8,223	89 1/2-90 1/2	90 1/2-90 1/2	-90 1/2	90 -92	-92	91 1/2-92
7,500,000	Bethlehem Iron**	3,681	60 1/2-60 1/2	60 1/2-60 1/2	60 1/2-60 1/2	59 1/2-60 1/2	-60	60 1/2-60 1/2
	Bethlehem Steel Rights.....	8,652	22 1/2-22 1/2	22 1/2-22 1/2	22 1/2-22 1/2	-22 1/2	22 1/2-23	23 -23 1/2
12,500,000	Pressed Steel, Common.....	3,660	50 1/2-51 1/2		-51 1/2	51 1/2-53	52 1/2-55	53 -54
12,500,000	Pressed Steel, Pref. (7% Non-Cu.)	2,860	82 1/2-82 1/2	82 1/2-82 1/2		82 1/2-83	83 -84 1/2	84 1/2-85 1/2
19,000,000	Am. Steel Hoop, Common.....	8,815	27 1/2-28	26 1/2-27 1/2		27 1/2-28 1/2	28 1/2-29 1/2	29 1/2-31 1/2
14,000,000	Am. Steel Hoop, Pref. (7% Cu.)..	6,002	74 -75	-75	-75	-75	75 -76 1/2	75 -75 1/2
	Am. Car & Foundry, Common...	2,397	-19	18 1/2-19	-18 1/2	18 -19	18 1/2-19	-18
	Am. Car & Foundry, Preferred.	2,150	-63	61 1/2-62	61 -61 1/2	60 -60 1/2	60	-60

* Par \$50. ** 6% guaranteed by B. S. Co. *** \$1.50 per share paid in. Late Philadelphia and Chicago sales by telegraph.

Bonded Indebtedness: Am. S. & W., \$730,000; Am. Tin Plate, none; Am. Steel Hoop, none; Federal Steel Co., \$13,200,000; Illinois 5%, \$7,417,000; E. J. E. R. R. 5%, \$1,600,000; Johnson 6%, \$6,732,000; D. & I. R. E. R. 5%, \$1,000,000; 2d D. & I. R. E. R. 6%, \$10,000; land grant D. & I. R. E. R. 5%, National Steel, \$3,561,000; 6%, Tennessee C. & I. R. E. R. Co., \$3,367,000; 6%, \$1,114,000; 7%, \$1,000,000; 7% cu. pref., Pennsylvania Steel, \$1,000,000; Steelton Ist; \$2,000,000; Sparrow's Point Ist, \$4,000,000 consolidated, both plants; Bethlehem Iron, \$1,351,000.

Antimony.—In this metal there has been no change. Hallett's is still quoted at 10c. and Cookson's is equally firm at 11c.

Nickel—Is unchanged and the firmness of the market continues. Canadian Nickel is quoted 38c. to 40c. for lots larger than 1000 lbs. and 40c. to 50c. for smaller quantities.

Tin Plate.—The market is in very strong position, and although there has been no change in the price it is simply because there has been no settlement as yet as regards the Tin workers' scale. Demand during the last week has been very good, and, in fact, it is reported that the business is better than it has been for some weeks past. The American Tin Plate Company are still quoting 100-lb. Cokes, New York delivery, on a basis of \$4.05 to \$4.10. The English market is reported strong, although without change as to price.

Enamels for Finishing Iron Beds.

The Adams & Elting Company, 155 Washington Boulevard, Chicago, manufacturers of paint specialties, have made such strides in the production of enamels and primers as to be worthy of mention. Some of the largest manufacturers of iron beds in the United States are now using their goods. As the finish of iron beds has a great deal to do with selling them this is a point which manufacturers cannot afford to ignore. The Adams & Elting Company have experts in their employ whom they send with samples of their enamels to make a careful test and prove their assertions. Iron bed manufacturers would therefore run no risk in investigating the company's products before placing their orders on enamels and primers.

As long as eight or ten years ago predictions were freely made that the supply of natural gas in the Pittsburgh district would soon be exhausted and manufacturers and domestic users as well would be compelled to go back to the use of coal. That these predictions were untrue has been amply verified by the fact that the supply of natural gas for domestic use in the past couple of years has been more satisfactory than in previous years. It is true that a good many large manufacturing concerns were cut off from using gas and it was sold to domestic consumers. New and very productive gas fields have been discovered, principally in West Virginia, and the supply bids fair to last for many years. In fact, the Philadelphia Company, the principal supplier of natural gas in the Pittsburgh district, have just issued a notice that, with a view of increasing consumption of natural gas for domestic use, they have decided to make connection and set meters and regulators free of cost to consumers for the next six months.

Governor Sayers of Texas has issued an invitation to the Governors and Attorney-Generals of all the States to participate in an anti-trust conference to be held in St. Louis, Mo., on September 20.

Iron and Industrial Stocks.

There has been a general upward movement in Steel stocks, due to reports of early dividends, and to a more general realization of the fact that the concerns are making enormous earnings. There is much comment and many rumors are afloat concerning the alleged disagreements among the directors of the American Steel & Wire Company on the question of the forthcoming dividend on the common stock.

The Pennsylvania common Steel stock had a sudden jump this week as the result of a report that the company would retire their issue of \$3,500,000 6 per cent. bonds.

The Chapman Valve Company, Indian Orchard, Mass., have declared a regular quarterly dividend of 3 per cent., payable July 1, to stock of record June 26.

	Bid	Asked.
International Silver, Common.....	14 1/2	...
Otis Elevator, Common.....	34	35
Otis Elevator, Preferred.....	88	88 1/2
H. R. Worthington, Common.....	55	...
H. R. Worthington, Preferred.....	113	...
E. W. Bliss, Common.....	138	...
E. W. Bliss, Preferred.....	125	...
U. S. Projectile.....	100	...
International Pump, Common.....	26	27 1/2
International Pump, Preferred.....	67	67 1/2
Republic Iron & Steel, Common.....	17	17 1/2
Republic Iron & Steel, Preferred.....	60	61
Diamond State Steel Company.....	7 1/2	8

The promoters of the projected rail shipping coal combine in the Pittsburgh mining district have reached that point in the negotiations where a temporary organization is about to be made. Options have been secured on 100 out of 119 desirable mining plants of the district. It is stated that the company will capitalize at from \$60,000,000 to \$75,000,000. Moore & Schley, the New York bankers, will finance the deal. Stock will be equally divided into common and preferred. Some of the present interests will be bought outright, while others will remain as large stockholders of the new concern. Present managers of the plants will largely constitute the new directorate.

The Monongahela Consolidated Coal & Coke Company of Pittsburgh have been granted a charter, with a capital of \$10,000. The company propose to mine coal and manufacture coke. The directors are Geo. I. Whitney, Andrew W. Herron, G. W. Wurzell, John M. McBride and M. D. Ullery, all of Pittsburgh.

The Minneapolis Threshing Machine Company, Minneapolis, Minn., recently made what they claim to be the largest shipment of engines and separators ever sent out by any threshing machine company in the world. It consisted of 30 carloads and went to the Red River Valley, N. Dak. Nearly all the engines were of 25 horse-power or larger and the separators had 40-inch cylinders.

The International Car Wheel Company.

A consolidation of certain car wheel works and charcoal blast furnace properties in the Eastern States, Canada and the Lake Superior district (as set forth hereafter) has been effected under the name of the International Car Wheel Company, incorporated under the laws of the State of New Jersey, with an authorized capital of \$5,000,000 7 per cent. cumulative preferred stock, and \$10,000,000 common stock.

The consolidation has been effected on the following basis: \$775,000 of the preferred stock and \$3,255,000 of the common stock will be issued in full payment for the real estate, buildings, tools, machinery, plant and good will of the various consolidating companies. One million dollars of the preferred stock will be sold to provide working capital for the new company. The balance of the preferred and common stock will be reserved for future issue as may be necessary for the expansion of the business or the acquisition of other like properties. The new company will not take over the present investments in credits and merchandise, manufactured and unmanufactured stock, iron, &c., and bills and accounts receivable, and it will not assume the bills and accounts payable, debts and obligations of any kind of the companies consolidating. Each company will collect their own bills and accounts receivable and all other moneys due to them, and pay all their outstanding obligations of every kind whatsoever. Manufactured and unmanufactured stock, iron, &c., will be disposed of by each company, for their own account; but the new company will have the option of purchasing from each consolidating company, at present market value, such manufactured and unmanufactured stock, merchandise, iron, &c., as may be desired.

All real estate, buildings, tools, machinery and plant now used and required for carrying on the business of each consolidating company will be transferred to the new company against the delivery of preferred and common stock as above set forth.

The consolidating companies are:

	Wheels, number.	Castings, quantity
New York Car Wheel Works, Buffalo, New York		
City and Philadelphia Works, Philadelphia Car		
Wheel Company, Pittsburgh Car Wheel Com-	500	10 tons.
pany, daily capacity.....		
Swett Car Wheel & Foundry Company, Chelsea,		
Mass., now being consolidated with Boston Car		
Wheel Company, Boston, Mass., with additional	200	20 tons.
plant now being put in, daily capacity.....		
St. Thomas Car Wheel Company, St. Thomas,	200	20 tons.
Ont., daily capacity.....		
Hamilton Wheel & Foundry Company, Hamilton,	200	30 tons.
Ont., daily capacity.....		
Montreal Car Wheel Company, Montreal, P. Q.,	100	
daily capacity.....		
Ramapo Wheel & Foundry Company, Ramapo, N.	200	20 tons.
Y., daily capacity.....		
John McDougall & Co., Montreal, P. Q., daily ca-	100	
capacity.....		
Total daily capacity.....	1,500	100 tons.

Weston Charcoal Iron Furnace property, Manistique, Mich., daily capacity 100 to 125 tons charcoal iron. The Furnace Company property includes the supply of ore for this year's operations and supply of wood for charcoal making, sufficient for operations for a period of 20 years.

It is not the intention to close any of the consolidating plants, as only those have been acquired which have a regular and well established business in supplying steam, electric and other railways with wheels and castings for regular renewals and new construction. Options have been obtained upon other valuable furnace property, extensive woodland for charcoal making and ore supply. These properties are now being examined and action will shortly be taken in regard to them. The capacity of the car wheel works acquired will be immediately increased to 2000, and if necessary to 2500, wheels per day. The furnace property acquired is in shape to start up within a few months and is now supplied with ore for this year's operations.

In Canada the wheel companies have secured for a term of years the product of the new charcoal furnace of the Canada Iron Furnace Company, now building at Midland, Ontario, which will have a capacity of 100 tons per day. It is the intention to export charcoal pig iron as part of the new company's operation for the use of affiliated car wheel works now operated and under construction in Europe.

The following directors of the International Car Wheel Company were elected for the first year: P. H. Griffin, Buffalo, N. Y.; T. Guilford Smith, Buffalo, N. Y.; J. Fred Pierson, Ramapo, N. Y.; A. D. Bosson, Boston, Mass.; T. J. Drummond, Montreal, P. Q.; Edgar McDougall, Montreal, P. Q.; Herbert L. Satterlee, New York, N. Y.; C. W. Barnum, Lime Rock, Conn.; S. Singer, Paris, France; Robert Comans, Montreal, P. Q.; A. E. Domville, St. Thomas, Ontario; Warren P. King, Buffalo, N. Y.; John H. Fleming, Brussels, Belgium, and Howard K. Wood, Jersey City, N. J.

The Edison Portland Cement Company, a corporation with an authorized capital of \$11,000,000, have ap-

plied for a charter under the laws of New Jersey. The directors are Thomas A. Edison, W. H. Shelmerdine, Harlan Page, W. A. Mallory, U. S. Pelling, Luther S. Bent, T. I. Crane and H. L. Townsend. All the above are Philadelphians except Mr. Edison. The combination propose to make cement by improved methods invented by Thomas A. Edison, whereby, it is claimed, one machine will crush 100 barrels an hour, against five under the present method.

The Niles-Bement-Pond Company.

We are informed through an official source that the Niles-Bement, Miles consolidation has been practically consummated and that only a few of the final details remain unperfected. The name of the new company is to be the Niles-Bement-Pond Company. Articles of incorporation are to be filed with the Secretary of State of New Jersey within a short time.

The four concerns who are to be taken over into the new company are the

Niles Tool Works Company, Hamilton, Ohio;
Bement, Miles & Co., Philadelphia;
Pond Machine Tool Company, Plainfield, N. J.;
Philadelphia Engineering Works, Philadelphia.

It is understood that the plant of Bement, Miles & Co. will be taken over, as well as will the plants of the other companies, or a controlling interest in their capital stock. The organization will be perfected during the next few weeks. Most if not all of the vendors take stock of the new company in payment of their purchase price. There will be no public underwriting whatever, and there will be no promotion or promoters. The chief members of the constituent companies will be members of the new Board of Directors.

The capitalization of the new company could not be ascertained, and it was stated that this point had not been definitely decided upon and was subject to change at any time between the present and the time of securing the charter for the company.

It is stated, however, that at present the capitalization of the Niles Tool Works Company, who are incorporated under the laws of the State of Ohio, is \$2,000,000. The Pond Machine Tool Company are incorporated under the laws of the State of New Jersey at \$500,000 and the Philadelphia Engineering Works are incorporated under the laws of the State of Pennsylvania at \$200,000. The firm of Bement, Miles & Co. are not incorporated, being a partnership, but it is stated that the valuation of the plant, assets and good will aggregate about \$1,000,000.

The men actively in charge of the consolidation are members of the Niles Tool Works Company, the most active of which are Col. Alexander Gordon and R. C. McKinney.

The attorney in charge of the organization of the company is Gordon T. Hughes of Lawrence and Hughes, New York City.

The John A. Roebling's Sons Company of New York were incorporated last week by the Secretary of the State of New York, with a capital of \$100,000, to manufacture and deal in wire, wire rope, iron, steel, copper and all other metals and other materials used in connection with them, and to contract for the building of structures of such material and metals. The directors are Washington A. Roebling, Charles G. Roebling, Jr., Frank O. Briggs, Charles G. Roebling and Ferdinand W. Roebling of Trenton, N. J., and Henry L. Shipley and Edward Roebling of New York. At the offices of John A. Roebling's Sons Company, 117-119 Liberty street, it was said that this is an independent company, and had no connection with the parent company. The precise object of the new company was not stated.

It is reported that the Union Rolling Mill Company of Cleveland, Ohio, have withdrawn from the Republic Iron & Steel Company.

The representative of very large mining interests relates an incident which well illustrates how business is crowding upon some shops. Some time since the interests in question ordered some machinery, and, although the exact time of delivery was not a matter of much concern, the contract contained the clause usual with the buyer providing for a forfeit of \$150 per day. The machine builder, knowing that the engine was not really needed at the time specified, recently made a proposition to pay a forfeit of \$200 per day if the buyer would allow him to divert the engine to another important customer more eager for prompt delivery.

A strike at the Columbian Iron Works, Baltimore, Md., was declared off on Monday, the company having acceded to the demands of the striking shipbuilders.

HARDWARE.

Condition of Trade.

AFTER a season which will doubtless be a memorable one in the Iron and Hardware trades the first half of the year draws to a close amid conditions which give promise of still further activity and a higher range of prices. The state of the Iron market is such that advances in many manufactured articles are necessary and there begins to be a marked movement among the workmen in the direction of higher wages. It is, therefore, to be expected that there will be an announcement of advances in a good many lines which have responded slightly or not at all to the upward trend, and in some lines which have been radically advanced still further movement is expected. The extent to which it is safe to purchase at the high prices is a matter which calls for the best judgment of the merchant, and the question will be determined by the theory he may entertain as to the duration of the present range of values. It is conceded practically by all that reaction will come sooner or later, but opinions differ widely as to when the slump is to be expected. The great consolidations, which exercise so important a part in the control of the raw material, are regarded by some as likely to maintain high prices for a much longer time than would be possible under the old order of things, but, on the other hand, there are those who regard the great number of consolidations and trusts of one kind or another as a serious menace to the market, the effect of which cannot be forecasted at present. Conservative men, while welcoming the improvement in prices, regret that the market is moving up so rapidly, and apprehend that a reaction may come sooner or later and bring a good deal of disturbance with it. But business is good on all sides, manufacturers and jobbers are making money and retailers find a decidedly better tone in local trade. There is much difficulty in getting many lines of goods and several classes of Hardware, especially in the heavy branches of trade, command high prices on account of present scarcity. The financial situation is gratifying and comparatively little complaint is made in regard to collections.

Chicago.

(By Telegraph.)

The volume of business in Shelf Hardware is beyond anything ever before experienced by Chicago jobbers. The only unpleasant feature of the trade is the scarcity in many lines of goods. A great deal of time and much energy are consumed in trying to hasten shipments from factories. Much annoyance is felt on this account, as jobbers are, of course, anxious to get the benefit of the heavy demand for goods while it lasts. The demand is increasing for all kinds of Tinware, but here also considerable shortage prevails. Dairy goods are extremely scarce, such as Milk Cans, Creamery Pails, &c. A much better demand is noted for Roofing Plates and tinner's stocks generally. Heavy Hardware jobbers report a continuance of their active trade. They are receiving a multitude of small orders for Iron and Steel, but the demand

for Wagon Stock has been unusually strong. Wagon manufacturers are buying up all kinds of wood stock, even taking green lumber, which they would have rejected a short time ago. The outlook continues very encouraging.

St. Louis.

(By Telegraph.)

Quieter conditions prevail in the Hardware trade. The time is between seasons and salesmen are dropping into headquarters every now and then. Intelligent survey of conditions governing the various States shows that very few are adversely effected. The business for the remainder of the year promises to equal in volume that for the half now closing. Full prices are being obtained for goods which showed advances. Nails and Wire are in heavy movement, and the advanced figures do not turn away buyers. Builders' Hardware continues to go, and as raw material have been further increased in price this week Iron and Steel manufactured goods will naturally follow. The Sheet deal is said to be postponed till cooler weather, which is, perhaps, a kindly way of declaring that it cannot go through. Prices show no change, but deliveries are said to be freer. Heavy Hardware dealers are enjoying an excellent trade and are having their stock drawn on by buyers who have been turned away by mills. Buggy and carriage makers' prices show no change since the first of the year. They claim all contracts have been made for the season on basis of last year's specifications. This winter will see substantial changes, however.

Philadelphia.

SUPPLER HARDWARE COMPANY.—It is usual at this time in June to look for a falling off in trade, but this season is an exception to what might be termed the general rule, and trade continues active with a firmness in prices which has scarcely existed at any time during the year; indeed, we might say at any time during the last six years. The scarcity of raw material and the difficulty with manufacturers to obtain stock from which to turn out their product has at last alarmed many of the pessimists, who were indiscreet enough to say to their customers that the prices ruling might not show the same firmness which they have and are likely to show for some time to come. The fact is, while prices are high they are not high compared to prices which existed ten years ago in 1889, and continued up to 1892, at which time the depressed trade which resulted in such great dimensions began.

Many kinds of goods are still scarce, season goods especially so.

Collections are fair.

Louisville.

W. B. BELKNAP & Co.—The market continues to develop strength. There is no sign of weakness anywhere. Prices that seemed absurd to us a few weeks ago are gladly accepted as a basis of contracts for current wants. Most mills declare themselves entirely sold up, while a few others which were filled up a short time since are coming into the market at the present prices, and plants that we have not heard much of for a number of years are reviving under the stimulating influence of the existing prices. There is no need of going to the Klondike for a fortune if one only has a supply of steel and a sheet mill in these days.

This strength so near the time for the adjustment of the labor scale is unusual, for generally we see prices at their lowest ebb about that time.

The main fear that jobbers have is a scarcity of goods brought about by the inability of the newly appointed district managers, sale agents, heads of order departments, &c., being able to get the full product out of the mills which their old and well disciplined masters were able to do. Some of these gentlemen who turned in their plants to the large organizations at three or four times what they were supposed to be worth previously are said to be taking life easy. A trip to Europe on a part of the proceeds is said to be the correct thing.

Building in the cities is very active, and the construction of factories, machine shops, &c., is a good sign. We doubt if there was ever a time when labor was more generally employed. Moreover, money seems in abundant supply for all the legitimate demands made on it. It may not be enough to keep industrial stocks up to their inflated values, but there ought not to be enough for that. Any plan which shows a probable profit based on actual values will attract the attention of capitalists, timid as they proverbially are.

Cleveland.

THE W. BINGHAM COMPANY.—Trade keeps up remarkably well for June. Prices are advancing so rapidly that it takes a large portion of the salesmen's time to keep track of the new rates, and customers are commencing to hold off their buying, expecting a reaction soon. In this, we are satisfied, they will be greatly disappointed, as, according to our ideas, prices on manufactured articles have not begun to reach their limit.

The writer took occasion the other day to look over some old orders to compare them with present prices. He found an order which was an ideal one for the purpose, having been sold to one of our old customers, and consisting of a general assortment of Hardware covering 11 pages. It was sold in February, 1883, and the total amount was \$856.22. This same order, figured at prices which we were selling at in 1897, figured \$487.88. At the prices at which we are selling to-day this order would amount to \$535.63; so that it is plain to see that Hardware is still very low, as the prices in 1883 were low compared with the prices of the year of the boom. In dissecting this order we find that in 1883 the item of Screw and Strap Hinges was sold at 3¼c. for the large sizes; at to-day's prices, \$2.40. The Screws in 1883 amounted to \$26.45; to-day, \$15.56. Steel Squares, \$15.86 in 1883; to-day, \$5.43. Wrought Staples in 1883, \$2.66; to-day, \$1.37. Common cast steel Auger Bits, the items amounted to \$30.80; to-day, \$17.69. Carriage Bolts, \$41.93 in 1883, as compared with prices of to-day \$24.79. Green Wire Cloth, \$141; to-day's prices (which are 33 1-3 per cent. higher than what we sold at last year) only amount to \$75, and thus it is throughout the bill. We therefore say that prices of to-day are still low.

Collections are fair and the outlook for fall is excellent.

Portland, Oregon.

CORBETT, FAILING & ROBERTSON.—Trade conditions in this territory are very much the same as heretofore reported. Improvement in some sections is reported in the crop outlook owing to more seasonable weather. In other sections the change has come too late and the acreage will be much short of what we expected for the season of 1899.

The Pacific Hardware & Metal Association will hold their annual meeting the coming week at Castle Crag, Cal. We expect that Oregon and Washington will be represented there.

Boston.

BIGELOW & DOWSE COMPANY.—The volume of business continues large and satisfactory. Every one realizes that the recent advances in raw material must eventually affect the price of manufactured goods. The recent advance in Shovels and Wire Nails is being well maintained. Wire Cloth sells as readily at \$2 as it did at 95 cents per 100 feet.

The outlook for an advancing market seems to be as-

sured. A higher range of prices for the future is certain. The difficulty in getting goods from the factories still continues. The jobbers' stocks are large and well assorted, and the retailers find it to their advantage to place their orders where there is a certainty of having them filled promptly.

Notes on Prices.

Wire Nails.—The advance of 25 cents per keg on Wire Nails made by the American Steel & Wire Company, which went into effect June 1, is being strictly maintained by the manufacturers. Merchants in need of Nails are ordering, the advance apparently not restricting purchases. The American Steel & Wire Company have issued a circular to the effect that after July 1 the practice of allowing a discount of 2 per cent. for cash in ten days on Wire Nails will be discontinued. Advance notice of this change is given that the trade may be enabled to adjust their methods to the new conditions. The manufacturers' quotations continue as follows, f.o.b. Pittsburgh:

To jobbers in carload lots.....	\$2.35
To " " in less than carload lots.....	2.37½
To retailers in carload lots.....	2.45
To " " in less than carload lots.....	2.55

New York.—The movement of Nails in the New York market continues satisfactory, but some think that the present increased cost of materials will have the effect of restricting the projecting of buildings not already under contract. Quotations remain:

To retailers, carloads on dock.....	\$2.55 to \$2.60
To " " less than carloads on dock.....	2.75
Small lots from store.....	2.75 to 2.85

Chicago, by Telegraph.—An exceptionally good demand is reported for the season. Manufacturers are receiving good orders and are finding little trouble from stocks being placed on the market through second hands. It would be supposed that the sharp advance would induce something of this kind, but the legitimate trade has been too heavy for the accumulation of speculative stocks. The American Steel & Wire Company have decided to change their terms, and after July 1 all sales will be billed 30 days from date of invoice net cash, with no discount. Single carload lots are quoted at the equivalent of \$2.60, Chicago. Jobbers are having a good demand, which is much better than they had expected during this month. They quote small lots from stock at \$2.70.

St. Louis, by Telegraph.—An excellent volume of business is moving at no change in price. Carload lots are quoted at \$2.55, St. Louis. Jobbers quote single cars at \$2.65, base, with small lots at \$2.75, base.

Pittsburgh.—A report is being printed in the daily press that the American Steel & Wire Company made another advance of 25 cents per keg in the price of Wire Nails, taking effect on June 12. This is untrue, as no advance has been made since the one of June 1, referred to in this report last week, but an official announcement of a further advance in prices at any time would not occasion much surprise. We are advised that there is a good, healthy demand, jobbers reporting a large movement in Nails. Some unevenness in prices among jobbers is reported. We quote: To jobbers in carload lots, \$2.35; to jobbers in less than carload lots, \$2.37½; to retailers in carload lots, \$2.45; to retailers in less than carload lots, \$2.55, all f.o.b. Pittsburgh, with freight to destination added.

Cut Nails.—The market continues firm at the recent advance of 15 cents per keg in the Eastern territory. It is not improbable that the move of the American Steel & Wire Company in abolishing the 2 per cent. discount for cash in ten days on Wire Nails may be followed by the Cut Nail manufacturers in this territory and the same rule made to apply to Cut Nails. Quotations are as follows, f.o.b. Pittsburgh, with freight added to destination:

To jobbers in carload lots.....	\$2.00
To " " in less than carload lots.....	2.05
To retailers in carload lots.....	2.05
To " " in less than carload lots.....	2.20

New York.—The conditions of the Cut Nail market remain unchanged. The movement of Nails is good and

the market is characterized by a firm tone. Quotations are as follows: Carload lots on dock, \$2.15 to \$2.20; small lots from store, \$2.30 to \$2.35.

Chicago, by Telegraph.—This trade has shown practically no change, a good demand coming from the class of buyers continuing to use Cut Nails. Small lots are quoted at \$2.

St. Louis, by Telegraph.—Two dollars remains the jobbers' price for small lots, and the regular trade is being had.

Pittsburgh.—There has been no change in Cut Nails since our last report, and quotations are as follows: To jobbers in carload lots, \$2; to jobbers in less than carload lots, \$2.05; to retailers in carload lots, \$2.05; to retailers in less than carload lots, \$2.20, all f.o.b. Pittsburgh, to which freight to destination is added. There is a good demand for Cut Nails, and some of the mills report considerable difficulty in getting Nail Plate as fast as needed.

Barb Wire.—The Barb Wire market continues firm at the 25 cents per 100 pounds advance noticed last week. The American Steel & Wire Company are adhering strictly to the practice of charging an advance in price of 5 cents per 100 pounds for pony reels, catch weights and 10 cents per 100 pounds for pony reels, specified weights. Prices are as follows, f.o.b. Pittsburgh:

To jobbers in carload lots, Painted.....	\$2.45
" " " Galvanized.....	2.95
" in less than carload lots, Painted.....	2.47½
" " " Galvanized.....	2.97½
To retailers in carload lots, Painted.....	2.55
" " " Galvanized.....	3.05
" in less than carload lots, Painted.....	2.65
" " " Galvanized.....	3.15

Chicago, by Telegraph.—Manufacturers are enjoying a brisk trade in Plain Wire as well as all kinds of Fencing Wire. They report a tremendous consumption of Wire by manufacturers of Wire products. The wants of these manufacturers are running far in excess of anything previously known, causing the Wire mills to fall considerably behind in their deliveries on all classes of special Wire. Quotations are continued at the equivalent of \$2.45, Chicago, for carload lots of Plain Annealed, \$2.70 for Painted Barb Wire and \$3.20 for Galvanized, with small lots at 10 cents per 100 pounds above carloads.

St. Louis, by Telegraph.—As in Nails it is reported that a generous business is being transacted in Barb Wire. No increase in price it seems can stop the demand, and every one seems satisfied. Painted is quoted in carload lots to jobbers equal to \$2.65, St. Louis. Jobbers' price, single cars, is \$2.75, with smaller lots at \$2.85. The advance on any quantities of Galvanized is 50 cents per 100 pounds.

Pittsburgh.—There is a fair demand for Barb Wire, though not as heavy as for Smooth. Jobbers report that retailers are buying quite freely. We quote at \$2.45 for Painted in carloads to jobbers and \$2.55 to the small trade, with an advance of 50 cents for Galvanized, all f.o.b. Pittsburgh.

Smooth Wire.—The trade are experiencing some difficulty in obtaining Smooth Wire to fill their requirements owing to the congested condition of mills, as their capacity is being severely tested by the volume of orders requiring immediate attention. Quotations of last week remain unchanged as follows, f.o.b. Pittsburgh:

To jobbers in carload lots.....	\$2.20
To " " in less than carload lots.....	2.22½
To retailers in carload lots.....	2.30
To " " in less than carload lots.....	2.40

The charge for galvanizing is 50 cents on sizes from 6 to 14 inclusive; on Nos. 15 and 16 it is 85 cents, and on Nos. 17 and 18 \$1.10.

Pittsburgh.—There is a heavy demand for Smooth Wire, and the mills are running to full capacity, turning out a very large tonnage. Jobbers report that retailers are buying very freely, selling out their stocks rapidly and buying again. We quote Smooth Wire as follows: To jobbers, \$2.20; to small trade, carload lots, \$2.30, and less than carload lots, \$2.40; on Galvanized Plain Wire all sizes up to and including No. 14, 50 cents advance; 15 and

16, 85 cents; 17 and 18, \$1.10, all f.o.b. Pittsburgh, with freight to destination added.

Files.—The new File list adopted June 1 is now in use by all the manufacturers, and will doubtless be the standard list. The jobbers and the smaller trade are generally adopting it. Discounts remain about as before, and this line of goods is regarded as relatively low in price.

Casters.—Some advances have been made by the manufacturers of Casters, and these goods are held firmly in sympathy with the increased cost of the raw material. Those into which Brass enters have naturally advanced more than the Iron. In this connection we are advised by M. B. Schenck & Co., Meriden, Conn., of the withdrawal of prices on their line of Yale, Gem and other Casters.

Chain.—The Chain market is strong, and some manufacturers are announcing a further advance of 25 cents per 100 pounds. Manufacturers experience a good deal of difficulty in turning out the goods as fast as wanted because they are unable to obtain the raw material promptly.

Screw and Strap Hinges.—A further advance of ¼ cent per pound has been made in the prices of Screw Hook and Strap Hinges, and the market is now represented by the following quotations:

	Cents.
6 to 12 inch, per pound	3¼ to 3½
14 to 20 " "	3 to 3¼
22 to 36 " "	2¾ to 3

Pruning Shears.—The J. T. Henry Mfg. Company, Hamden, Conn., in connection with the advance on their line of Pruning Shears have revised their discounts, simplifying them for the convenience of the trade. Their present quotations are as follows:

	Discount. Per cent.
Henry's Pruning Shears, all grades.....	50 and 5
" Orange "	50 and 30
" Grape "	50 and 10
" Tree Pruners.....	75

Wrought Iron Pipe.—An important advance was made last week in Wrought Iron Pipe, the base discount being made 50 per cent. instead of 60 per cent. as heretofore. The market is now represented by the quotation of 50 and 10 and 10 and 5 per cent. on carload lots, and on less than carload lots of discount 50 and 10 and 10 per cent. There is, however, a marked scarcity of Pipe, and manufacturers or jobbers who are in a position to make prompt shipments can readily obtain higher prices.

Market and Stone Wire.—There continues to be a good deal of difficulty in obtaining Market and Stone Wire promptly from the manufacturers, and prices are, in sympathy with all Wire products, higher and strong. There is, however, some diversity in the quotations of different manufacturers, but in many instances it is a question with the trade rather of obtaining the goods than of the price which is to be paid. The following quotations are given as fairly representing the market on these goods:

	Discount. Per cent.
Bright or Annealed, Nos. 6 to 16.....	75 and 5 to 70 and 10
Coppered, Nos. 6 to 16.....	67½ to 67½ and 10
Galvanized, Nos. 6 to 16.....	67½ to 67½ and 10
Tinned, " 6 to 16.....	70 and 10 to 75
Stone, Bright or Annealed, Nos. 19 to 26	77½
" " " 27 to 36.....	77½ and 5

Harrow Teeth.—An advance of ¼ cent per pound has been made in Harrow Teeth, and the market is now represented by the following quotations:

	Cents.
¾-inch and larger, per pound	2.25 to 2.50
½ and 9-16 inch, "	2.35 to 2.60

Maynard Lawn Mower Sharpener.—This article, which is being marketed by Bigelow & Dowse Company, Boston, and was illustrated in our last issue, is quoted at \$12 per dozen, subject to a discount of 25 per cent.

Wire Cloth.—Screen Wire Cloth is held by jobbers very firmly, and at prices which are gradually advancing. In some markets it is held at as high a price as \$1.50 to \$2, but in others the range \$1.25 to \$1.50 represents the situation.

Withdrawal of Cash Discount.—The action of the American Steel & Wire Company in withdrawing the cash discount and making their terms strictly 30 days from date of invoice net cash is in accordance with a tendency in trade, and is very likely to be followed in other lines. For some time, as our readers are aware, manufacturers of Iron, Steel and kindred goods have been making their terms strictly cash without discount, and among jobbers, especially in the Heavy Hardware line, the question is being considered of putting their business generally on a net cash basis. It is probable that the trade will hear more in regard to this matter.

Paris Green.—No change has taken place in the conditions of the Paris Green market. Demand has been and continues satisfactory to manufacturers, who consider that there will be no lack of Green unless the demand from the South should be very large. There is no uniformity in the requirements of the South from year to year, so that provision cannot be made for seasons when the cotton worm is more than usually destructive. At such times it is more the question of supplying the demand than at what price the Green is held. There is a continued lack of uniformity in manufacturers' prices, these ranging from 12 to 13 cents per pound in Arsenic kegs or casks. The following are makers' prices, which are shaded by jobbers having stock:

	Cents per pound.	
Arsenic kegs or casks.....	12	to 13
Kegs of 100 to 175 pounds.....	12½	to 13½
Kits of 14, 28 and 56 ".....	13½	to 14½
Paper boxes, 2 to 5 ".....	13½	to 14½
" " 1 pound.....	14	to 15
" " ½ ".....	15	to 16
" " ¼ ".....	16	to 17

Glass.—Stocks of Glass in first hands are controlled by the American Window Glass Association, placing them in a position to regulate prices until new Glass is put on the market next fall. The workmen's Wage Committee is scheduled to meet about the middle of July and a conference with the manufacturers is expected soon after to consider wages and the time for starting the factories. Recent years have witnessed considerable delay in a satisfactory conclusion being reached regarding these questions. As Window Glass assortments in manufacturers' hands become broken prices are liable to be advanced, following the precedent of preceding summer months. Prospects are for a determined effort on the part of the combine against the independent factories. The American Window Glass Association's prices are as follows:

Districts.	A.	B.	C.	E.
5000 boxes or more.....	85 & 5	85 & 5	85 & 5	85 & 5
Carloads.....	80 & 20	80 & 20	85 & 2½	80 & 20
3000 boxes or more.....	85	85	85 & 2½	85 & 2½
1000 boxes or more.....			85 & 10	

These prices are subject to freight allowance.

Paints and Colors.—*White Lead.*—The movement of White Lead in Oil continues in fair volume, larger perhaps than at a corresponding time last year. No change has been made in prices, which are as follows: In lots of less than 500 pounds, 6¼ cents; 500 pounds and over, 5½ to 5¾ cents per pound.

Oils.—Seed is somewhat stronger than at the time of our report on Linseed Oil last week and has imparted a firmer tone to the market. This is indicated by not so strong a desire on the part of crushers to sell Oil and the prospective prices for the 1900 crop of Seed. There is also a slight increase in the demand for Oil in a jobbing way. Contracts have been made for Oil for delivery during the closing months of 1899 and the opening months of 1900 at 31 cents in tanks and 33 cents in barrels. Speculators would probably place orders at 30 cents in tanks or 32 cents in barrels. City Raw Oil remains unchanged in price as follows: In lots of five barrels or more, 39 cents; in lots of less than five barrels, 40 cents. Boiled Oil is 2 cents per gallon higher than Raw. State and Western Oil is quoted at 36 to 37 cents per gallon for Raw.

Spirits Turpentine.—Turpentine fell off in price about 1 cent during the past week, but is now quoted at substantially former figures, with a firmer tone to the market.

Stocks at this point have been reduced, while the filling of June contracts and an export demand at Savannah have lessened the supply on hand at that point. The rising market has stimulated local buying to some extent. Present quotations are 38½ to 39 cents for Southern and 39 to 39½ cents for machine made barrels at this point.

Correspondence.

ST. LOUIS, June 7, 1899.

To the Editor: We have noticed in your valuable paper several communications in regard to sending of personal checks on local banks to distant points in payment of bills due or maturing.

This abuse has reached a point where something must be done to correct it, as well as many other evils which have crept into the business during the times of depression, and caused by the anxiety of the seller to dispose of his material.

There never was a better time than the present for united action, through the various associations in the Hardware line, to correct the abuses which have been so keenly felt by every jobber and dealer in the Heavy Hardware line.

First, the striking from invoices the legitimate charge of box and drayage, which is as much a part of the invoice as the charge for any portion of the goods delivered. It has been the custom with a large number of houses to charge only absolute cost, but it appears in this strongly competitive age parties resort to all sorts of schemes in soliciting orders, undermining good business principles which have been long and well established. It is impossible for any firm, no matter how strong, nor what their facilities for doing business, to ignore the charge for box and drayage.

The sending of personal checks, which involves us in a loss of from \$3 to \$20 a day for bank exchange, is another abuse which has crept into the trade, and as it is the "last straw that breaks the camel's back," we think it is time we should call a halt. Various schemes have been talked over to prevent the sending of these checks, but to do this we must strike at the fountain head of the evil, and the trouble largely lies with the local banker, who encourages the customer to send in personal checks. Oftentimes the parties sending checks have not got money enough in bank to pay it at the time it is sent, but they trust to good luck to make collections sufficient to make it good by the time the check is returned to the local bank, which takes from 5 to 20 days. The banker then gets a rake-off in the way of exchange, or extra charge for collection, and he is also able to carry a larger balance in the larger cities. The course adopted by the New York bankers, we think, is the correct one; that is, to charge up to the parties making the remittance the cost of collection. We think this would induce them to stop sending personal checks after awhile.

When profits are so small as they have been, and the expense of doing business so large, there are many good reasons why this legitimate charge for collection of personal checks should be made. ***

George Amsden has purchased the interest of Mr. Adams in the firm of Carhart & Adams, at Manchester, Iowa, and the style is now Carhart & Amsden. On July 1 the firm will move across the street to a two-story brick building formerly occupied by J. J. Hawley, but which is owned by Mr. Amsden. The firm are now engaged in fitting it up to suit the requirements of a Hardware business. They are putting in new shelving and an elevator with 1500 pounds capacity.

Tarver-Henslee Company have succeeded Tarver & Henslee, at Rosebud, Texas. The company have been incorporated with a capital of \$30,000, and the following officers: J. A. Tarver, president; S. G. Henslee, vice-president, and S. T. Davis, secretary. Besides Hardware and Farm Implements, they are now carrying a stock of dry goods and groceries.

The Northwestern Retail Hardware Association and A. G. Spalding & Bros.

THE following letter from J. W. Clark, secretary of the Northwestern Retail Hardware Association, is an answer to the communication published in our issue 1st Inst. from A. G. Spalding & Bros. It will be observed that Mr. Clark takes issue with the well-known athletic goods manufacturers and explains the position of the association:

MINNEAPOLIS, MINN., June 9, 1899.

A. G. SPALDING & BROTHERS, NEW YORK, N. Y.

Gentlemen: Your favor of 27th ult. came duly to hand. I also observe that the same was published in *The Iron Age* of June 1.

Replying, beg to say, as you admit therein that you do sell to department stores and catalogue houses, and declare that you will not drop this class of trade, you prove our case—viz., that from the standpoint of the association we were justified in reporting you as “unfavorable” to the objects of our organization.

The Association Misrepresented.

The first issue having been made clear, we should have taken no further notice of the matter, but you have placed the association in a false light, before its members and the public, both as to its practical operation and its moral and legal status. We feel, therefore, compelled to make further reply.

Much has been said (by you) of the Spalding policy, but your company have no monopoly on policy; we too have a policy. Let the two policies stand forth for the benefit of the members of this association.

Spalding Policy.

To sell to department stores and catalogue houses.

Association Policy.

To purchase no goods from those who sell to department stores or catalogue houses.

These policies conflict with each other, but both parties have an equal right to adopt and enjoy them. If the only object of our association was the maintenance of a high schedule of prices, then perhaps we could receive your policy with open arms. We believe, however, that we are working for more worthy objects.

You say “we consider that you have no right to dictate to us that we should not sell to department stores.” There is no conflict of opinion here. We have never made such dictation to any one; we simply avail ourselves of our fundamental right to decide for ourselves where or from whom we shall purchase our goods.

In practice this association would take no exception to your selling your line of goods to the class of legitimate dealers named by you, but department stores and catalogue houses are not considered legitimate, and are so referred to by you in your policy.

Department Stores and Catalogue Houses.

You make use of the term “so-called department stores and catalogue houses.” This indicates a familiarity with this subject which convinces us that you are better posted as to what constitutes these piratical institutions than your definition of them would lead one to believe. You well know that a small general store dealer in “Podunkville,” who may sell, say three lines of goods, never was or will be considered a “so-called department store” and to compare him with The Fair or Siegel-Cooper Company of Chicago is the height of absurdity.

In your opinion a catalogue house “is one that issues a catalogue in one form or another.” This is true as to the one form, but not so of the many reputable houses who issue catalogues in another form.

You say “If we should comply with your conditions we should have to refuse the orders of every house that issues a catalogue in any form.” We cannot think that

any reader of *The Iron Age* will believe you are sincere in making any such statement, or that you believe that your definition of the so-called department stores or catalogue houses is correct. If you are sincere in this view your opposition to our association is easily accounted for, and we would urge you to make a more critical study of so-called department stores and catalogue houses, also of our policy.

We are invited to study your plan, but it is so easy to see that your plan is so diametrically opposed to ours in certain essential respects that study is unnecessary.

Who Is the Dictator?

Your statements with reference to our dictating are so far from the facts that you evidently have some ulterior motive in making them, possibly to influence the trade public in your favor. In no case does this association attempt to dictate; we simply present our policy, you have the option of accepting or rejecting the same, thoroughly American for either party.

By your policy you dictate the price your goods are bought and sold for, dictating that if your price agreement is broken you will not permit the offending party to sell your goods in the future; truly thou art a dictator supreme.

Is Not a Boycott.

By inference at least you charge this association as being a boycotting institution. This statement we declare to be false and malicious, and not founded on fact. There is not and never has been a resort to force, threat or intimidation by this association.

Plan of Organization.

The supreme courts of several States have already passed upon the plan of organization adopted by this association, and all the courts have sustained this plan. The Supreme Court of this State, passing upon an association exactly like the Northwestern Retail Hardware Association (see Bohn Mfg. Company vs. Hollis, 54 Minn., page 223), says: “The case presents one phase of the subject which is likely to be one of the most important and difficult which will confront the courts during the next quarter of a century. This is the age of associations and unions, in all departments of labor and business, for purpose of mutual benefit and protection. Confined to proper limits, both as to end and means, they are not only lawful, but laudable.”

The Right to Combine and Refuse to Deal with a Particular Party.

The court, under this heading, says: “Any man (unless under contract obligation, or unless his employment charges him with some public duty) has a right to refuse to work or deal with any man or class of men as he sees fit; and this right, which one man may exercise singly, any number may agree to exercise jointly and make simultaneous declarations of their choice.”

Again the court says: “Associations may be entered into, the objects of which are to adopt measures that may tend to diminish the gains and profits of another, and yet so far from being unlawful they may be highly meritorious.”

All the legal points in connection with the practical operation of our association having been passed upon by the Supreme Court in this case, our members and similar associations of other States may be assured that we are entirely within the law, and that those who make use of the terms boycotting, conspiracy, drive us out of business, &c., as applied to associations of this nature are simply playing to the gallery, or making a big bluff.

Want the Co-operation of All Jobbers and Manufacturers.

It is the most earnest wish of this association to have the sympathy and co-operation of every jobber and manufacturer in the country, to assist us in carrying out the reforms we seek to accomplish, and judging from the action recently taken by the National Hardware Association of the United States (jobbers), the day is not far

distant when, through the combined influence and efforts of the jobbers, manufacturers and retailers, the wicked will cease from troubling and the weary be at rest.

Yours respectfully,

J. W. CLARK, secretary,

Northwestern Retail Hardware Association.

Traveling Expenses of Jobbers' Salesmen.

BY A SPECIAL CORRESPONDENT.

DIAGRAM.—The following diagram shows in tabular form the sales and expenses during a portion of a year of the four travelers of a jobbing house doing an annual business of about \$130,000.

NEW TRAVELERS.—By way of explanation it might be said that the last two travelers are new men on the road, this being their first year, and therefore the salary seems small as well as their sales. But as regards results, are not as satisfactory as older men.

MAIL ORDERS.—The travelers are only credited with orders taken by themselves, as all letter orders from their customers do not go to their credit.

USE OF RECORD.—A record kept like this serves many useful purposes in business, as it shows which men are doing the work and the cost of the same. Where such a record is not kept the value of the different salesmen is a matter largely of conjecture.

This table may be shown to the men and be the means of stimulating them to greater effort in the future.

BONUS FOR BEST RESULTS.—By way of encouragement it may be advisable to offer a bonus or extra pay to the man who does the most work at the least expense; or who may be able to increase his sales the next year even 5 or 10 per cent.

CHANGES.—The man who costs too much for sales made can be taken from the road and his place given to another.

METHOD OF KEEPING RECORD.—The record of each man's sales is kept separate on a binder reserved for his own use, and postings made from this direct to ledger and amount of sales credited to merchandise account each month.

Summary of Travelers' Sales and Expenses

Traveler.	Traveling expenses.	Salary.	Total expenses of selling.	Per cent. of selling.	Amount of sales.
A.....	\$821.20	\$610	\$1,431.20	5 1/2	\$25,796.21
B.....	753.80	730	1,473.80	7 1/2	18,769.80
C.....	710.06	498	1,178.00	7	16,745.49
D.....	821.72	519	1,340.72	11	11,839.72
Totals.....			\$5,423.78	7 3/8	\$73,151.22

Requests for Catalogues, Price-Lists, &c.

A. T. LAWTON has purchased the stock of Shelf and Heavy Hardware, Stoves and Tinware, Agricultural Implements, Sporting Goods, &c., formerly carried by G. H. Combs, Spickard, Mo., and will continue at the old stand. Mr. Lawton has rearranged the store, making it more convenient and attractive, and has also added to the stock. He expresses a desire that catalogues, price-lists, &c., be sent to him by the trade.

Richardson Hardware Company, Geary, O. T., have bought out J. E. Bonebrake Hardware & Iron Company at that point. They will appreciate catalogues and price-lists on Heavy Hardware, Stoves, Crockery, Sporting Goods, Pumps, Pipes, Harness Goods of all kinds, Implements, Buggies, &c.

Strehli & Co., located at 4016 Hamilton avenue, Cincinnati, Ohio, expect to add a line of Hardware to their business and request copies of catalogues, &c., relating thereto.

Letters from the Trade.

Our readers are invited to discuss in these columns questions of trade interest connected with the manufacture or sale of Hardware. We shall be pleased to have a free expression of opinion on subjects deserving the attention of Hardware merchants and manufacturers.

How to Meet this Kind of Competition.

The condition of things in a town in Ohio is referred to in the following letter. If any in the trade have had experience in this line perhaps they can help our correspondent with their suggestions:

Our competition here is very hard, and sometimes discouraging. When figuring on a bill of goods at such a small profit that we would rather not sell the bill our competitor goes to work and makes out his bill at a few cents above cost. Now he does this only when figuring with us, and when not figuring with us he will put the price on, or if this customer buys anything afterward he will boost the price if possible. This looks bad, and some say that we can sell as cheap as he can; but when the year is up he averages all right. What would be the best policy with which to meet this kind of competition? Would like to have suggestions from the trade.

Retailers' Prices.

The following letter from a Hardware merchant in Eastern New York touches upon the extent to which prices are cut and retailers fail to realize the profit of advances which have taken place in goods. It is not unlikely that a similar condition of things exists in other places East and West:

There is no understanding between the Hardware merchants of this city and they sell at very low prices. Many staple goods they are selling to-day at lower prices than the manufacturers; for example:

Galvanized Barb Wire, 2 1/2 cents.

Wire Nails, \$2.20, base.

Poultry Netting, 85 and 10.

Horseshoes, \$3.25.

The department stores have cut into our trade to such an extent that you can hardly obtain an article in the House Furnishing Goods line in a Hardware store here, and many more grievances might be mentioned.

Southern Hardware Jobbers' Association.

AS we go to press the ninth annual convention of the Southern Hardware Jobbers' Association is in session at Atlantic City. There is an unusually large attendance, many manufacturers and their representatives being present, and a goodly number of ladies.

At the opening session Wednesday morning after the organization an address welcoming the members and their guests was made by the president, James J. Mandelbaum, which was followed by a special address of welcome to the manufacturers by Charles H. Ireland of the Odell Hardware Company, Greensboro, N. C., and responded to by Webster R. Walkley of the Peck, Stow & Wilcox Company, New York.

The annual address of the president touched upon the work of the association and good results which have been accomplished, as well as the position and prospects of the South. The afternoon session is of an executive character.

Joseph L. Clark.

THE original of this biographical sketch, Joseph L. Clark, is one of the oldest, if not the very oldest living Hardwareman in the United States. He is now and has been since 1829 continuously and actively engaged in the Hardware business—a period of 70 years. In possession of all his faculties, he is more vigorous than many men a score or more years his junior. His portrait, together with the following sketch of his career, will thus be of interest to the trade.

Mr. Clark was born in Cooperstown, N. Y., April 24, 1809, and began his commercial life in 1829 in Utica, N. Y., entering the employ of Sayre & Thurber, dealers in Hardware, dry goods and kindred articles.

In 1830 he came to New York and clerked four years with Oakley & Mallory, who began business in 1830 at 126 Pearl street. Mr. Clark purchased the Mallory interest in 1834, the firm becoming Oakley, Johnson & Clark. In the spring of 1840 he joined with Townsend & Sayre, the firm title now being Townsend, Sayre & Clark. Mr. Townsend and Mr. Clark remaining together about 20 years. Since about 1865 Mr. Clark has been associated with S. Otis Livingston, now of the Livingston Nail Company, in various capacities—from 1865-66 to 1870 as treasurer of the Livingston Mfg. Company, Johnstown, N. Y., of which Mr. Livingston was president, the company manufacturing principally Saws and Files.

Mr. Clark, despite the fact that he is in his ninety-first year, still visits the trade in various sections daily, with little regard for the weather, as much for an occupation as for anything else. He married a Miss Thorne, sister of William K. Thorne, who was a son-in-law of Cornelius Vanderbilt, and on whom

the Commodore placed much reliance. There were three sons and three daughters, Mrs. Clark living until about two years ago, when she died, at the age of 84 years, at the time of her death said by friends to be a remarkably handsome woman with scarcely a wrinkle in her face.

The winter of 1838-39 Mr. Clark spent in St. Louis closing up the affairs of a firm there. In reaching his destination he journeyed by rail to Baltimore, took stage to Wheeling, and then by steamboat down the Ohio River to the Mississippi, consuming 18 days from New York to St. Louis. Owing to the low stage of water the boat would tie up at some convenient place when night came. In settling up the various accounts of the firm he was liquidating the collecting was all done on horseback, and usually when rivers and streams were encountered horse and rider swam across. In the spring, after finishing the business for which he went, Mr. Clark returned to New York.

Oakley, Johnson & Clark were at 69 Pearl street, New York, which was at the head of Coenties slip, when the great fire of December 16-17, 1835, occurred, in which 650

buildings containing merchandise were destroyed. According to a marble memorial tablet now on the building at 88-90 Pearl street the loss aggregated \$20,000,000. The conflagration started about 10 o'clock p.m. in Pearl street, near Wall, and worked south. The three members of the firm met at the store and watched the progress of the flames, thinking they would be extinguished, but decided to move goods down to the intersection of Broad and Pearl streets, about 500 feet. They went to a neighboring cooperage and helped themselves to a number of casks, bringing them to their store on a hand cart. Only Cutlery and similar fine goods were packed. Rejecting an offer of a cartman with a horse and cart at \$25 a load, they rolled the casks a few hundred feet down to Broad and Pearl streets and later to the Battery, about 1000 feet further. Curiously enough, the fire did not cross either Coenties slip or Coenties alley, which was a continuation of the slip. The next morning, finding their store had not been injured, they had their goods moved back. They were insured in three or four companies.

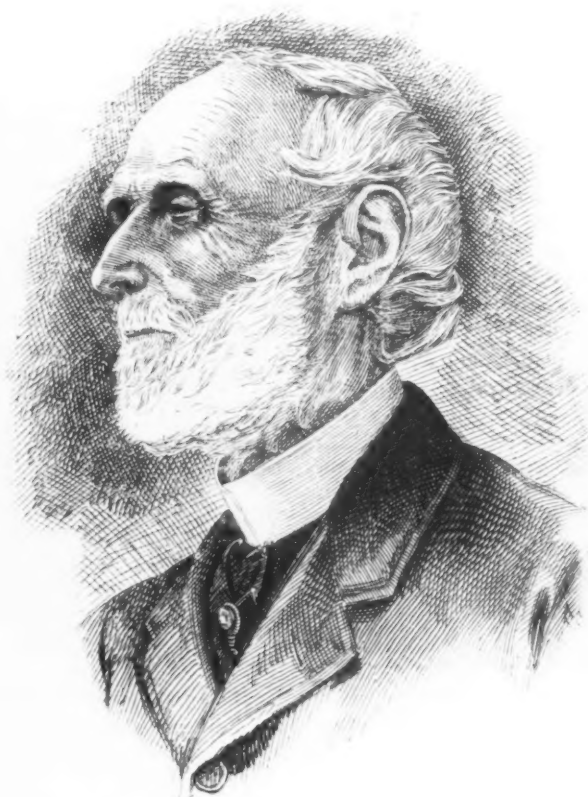
The firm's first experience in a panic came in 1836, the disaster spreading all over the country, but they weathered it all right. At that time sales among merchants were not large. In the panic of 1857 their concern did not suffer either, the firm, then Townsend, Sayre & Clark, not having a note renewed. Mr. Sayre, afterward president of the Onelda Bank, was a wealthy man, with an interest of \$80,000 in the business, besides a special deposit of \$80,000 more which represented earnings not drawn out and new money put in at various times.

Mr. Clark has seen most of the great processions in the vicinity of New York for many years. He witnessed that in honor of General Jackson in 1832 from the roof of St. Paul's Church. He

has seen all the Broadway processions at which Presidents of the United States were present since he came to New York. The funeral of John Quincy Adams was another notable procession which he remembers well. While in Utica about 1824 Mr. Clark recalls shaking hands with General Lafayette, who stopped there and was entertained at dinner. He also shook hands with Henry Clay in Syracuse.

When Mr. Clark came to New York in 1830 the population of the city was 210,000. He remembers a spring election that year when the party opposing the administration made an issue of extravagance, the municipal expenses of the year that had passed having aggregated \$150,000, though the city had no debt. Aldermen were not paid for their services at that time, the honor being deemed sufficient remuneration.

Mr. Clark has been a Whig and Republican in politics all his life and never failed to vote. He lives in Bloomfield, N. J., and, although in comfortable circumstances, takes pleasure in attending to business every day. Last fall, at Broadway and Canal street, in trying to board a cable car that he was told would stop in a



JOSEPH L. CLARK.

certain place (but didn't), Mr. Clark, forgetting his years, grasped the rail and was pitched headlong into a trench beside the track, where he was caught by one of the workmen, and, weighing less than 100 pounds, he was quickly put on his feet uninjured, as spry as ever, and caught the same car, which had stopped by that time.

Mr. Clark has never been in a saloon to drink any spirituous or intoxicating liquor, has read *Harper's Monthly Magazine* and the *New York Tribune* ever since they were first published, and has a complete file of *Harper's*. Although he has been in almost daily contact with S. Otis Livingston since 1865, they have never had a quarrel or an unpleasant word.

Mr. Clark is held in high esteem by his associates and the merchants with whom he does business for his sterling qualities and genial, cheery ways, which have always been a part of his honorable career. Many kind wishes are expressed for his continued health and prosperity.

Hardware Organizations.

Chicago Retail Hardware Dealers' Association.

The Chicago Retail Hardware Dealers' Association held a special meeting on the evening of the 10th inst. to arrange the details of the proposed Hardware Day. The date selected is July 26, and on that day they propose to close up their respective places of business and take their families and employees for an outing in the country. They have engaged Santa Fé Park, on the line of the Atchison, Topeka and Santa Fé Railroad.

Committees were appointed, covering all sections of the city, to call upon Hardware dealers not now identified with the association and induce them to participate in the celebration of the day. They will also solicit membership.

From this active work, which was agreed upon enthusiastically, it is expected that a great accession will be made to their membership. Placards are to be hung in front of the stores, calling the attention of the public to the proposed celebration of a Hardware Day, on which no business will be transacted.

Illinois Retail Hardware Association.

At the above meeting Secretary Goettsche reported on the progress made toward the organization of a State association in Illinois, reading a number of letters received from dealers over the State, favoring the plan and promising their co-operation.

The fact was commented on that the only trade paper to which any of the writers of these letters referred as the source of their information was *The Iron Age*.

The attention of those of our readers in Illinois who overlooked the former announcement is called to the fact that Ehler Goettsche, secretary of the Chicago Association, whose address is 1049 Milwaukee avenue, Chicago, would like to hear from all those who are in favor of starting a State association. A meeting for this purpose is to be held in Chicago, probably in August.

Retail Dealers' Hardware and Implement Association of Texas.

The annual meeting of the Retail Dealers' Hardware and Implement Association of Texas will be held at Dallas on June 20. The following circular letter issued by W. H. Richardson, Austin, president of the association, refers to the gathering, emphasizes the good work accomplished by trade organizations, and invites merchants not already on the membership roll to attend the meeting and affiliate with the association:

The date of our annual meeting—Dallas, June 20—draws near. You are requested to be present, and by

your presence and counsel add to the pleasure and contribute to the success of this meeting.

Our organization, young as it is, has fully shown its usefulness. While much has already been accomplished more can be done by those engaged in the Hardware and Implement trade of Texas, perfecting such an organization as will be a power for good in the land. It devolves upon each individual to do his share of the duty of the hour, and not wait for his neighbor.

Vast combinations of capital completely surround us; the entire business of the country is being taken up by trusts of such astonishing dimensions as to change the business conditions heretofore prevailing. With the fact established that nearly every article that we trade on is controlled no longer by individual competition, it is not now a question of ability on your part. A new era has been established. Your well-known reputation for keen buying and shrewd trades must be hauled over and adjusted to the new requirements. Vast railroad interests, closely allied to these large combinations of capital, are no longer your friends. Less than a year ago we succeeded by our organization in restoring to the old status a matter of vital importance to us—the mixed carload. Laws recently enacted by our Legislature protecting us from the piratical raids of foreign peddlers could only have been accomplished by the weight of the combined interests of an already powerful organization.

I would ask you to look the present conditions squarely in the face, and you will see the impossibility of coping with the giants single handed. We must meet them by an organization of all the Hardware and Implement interests of Texas.

We want every one interested in the Hardware and Implement trade of Texas, whether a member or not, to meet with us in Dallas and join our organization. Send your application to Chas. B. Smith, secretary, Belton, Texas, or to any officer of the association. Will you be there? Your reply by early mail will be much appreciated. Our friends in Dallas have taken much pains to secure favorable hotel and railroad rates, and promise us "the town." You cannot afford to miss this important meeting. Circulate the idea, and induce those not members to come with you.

Yours truly,

W. H. RICHARDSON, President.

East Tennessee Retail Hardware Dealers' Association.

The next meeting of the East Tennessee Retail Hardware Dealers' Association will be held on July 6 and 7, at Johnson City, Tenn. One of the topics for discussion is "Are you in favor of a National Retail Hardware Dealers' Association, and if so what steps are necessary to bring about such an organization." T. E. Moody, Athens, Tenn., secretary of the association, advises us that he would be pleased to hear from kindred associations on the subject.

Hardware Club of New York.

The following new members were added to the rolls of the Hardware Club at a meeting of the Board of Governors June 9:

RUFUS ADAMS,

271 Broadway, New York.

WILLIAM T. BAIRD,

25 Park place, New York.

WILLIAM L. CARRIGAN,

Dunham, Carrigan & Hayden Company, New York.

THOMAS C. CLARKE,

127 Duane street, New York.

DAVID H. DARLING.

United States Battery Company, New York.

FRANK NICHOLSON,

253 Broadway, New York

Trade Winning Methods.

This department will contain a description of approved methods of bringing customers to the store by means of newspaper advertising, circulars and such special expedients and methods as are found useful by enterprising and progressive Hardwaremen.

A cordial invitation is extended to merchants to co-operate in the effort to make it suggestive and of practical use to the trade.

A CHEAP METHOD OF MAKING ADVERTISING CUTS.

G. M. Evenson of the Hardware firm of Evenson Bros., St. Peter, Minn., has a process of making electrotypes for use in advertising that is the subject of a booklet recently published by him. Mr. Evenson is an enthusiastic believer in the efficacy of printers' ink judiciously employed and has given a good deal of attention to the matter of advertising, a subject which he has discussed in an admirable paper. In regard to his process of electrotpe making he calls attention to the small expenditure of time and insignificant cost connected with it and the fact that no special skill is required. We reproduce herewith one of the cuts prepared by this process.



Referring to the above cut and the manner of making it Mr. Evenson makes the following remarks:

The cut I send you is of my own production and is made by using a piece of common sheet zinc and acid.

Anybody can make a cut like this in ten minutes, and the cost will not be over 2 cents

It is not necessary that the operator should be an artist. If he can follow a line plainly indicated upon the piece of zinc it is all that is necessary.

If a person has the ability to draw free hand, so much the better. I cut out every picture I come across that I think I can use as an illustration for advertising, and here is the way I copy the picture onto the zinc plate:

Secure a pane of clean glass 8 x 10, mount it in a crack in a board so that it will stand on edge. Let the light shine on table over your left arm, place the picture you wish to make a copy of on the left side of glass; on the right side place your plate of zinc properly prepared. With your prepared ink trace the picture as reflected through the glass onto the plate of zinc.

Have good light on the copy and just enough light on the plate side for you to see the location of the point of your pen.

Mr. Evenson states that he has spent some time and money in perfecting his process, for which he

desires to be reimbursed. He accordingly offers to send his booklet containing full working instructions by mail to any one for \$1.

SOME SPECIMEN ADS.

The illustration presented herewith will give an idea of the manner in which Evenson Bros., St. Peter, Minn., attract the attention of readers of their local paper. In the reproductions the advertisements are, of course, very much reduced in size, the original of that given here be-

.NO ONE ACCEPTED.

Mr. Dobbins' invitation to produce a Buggy last Saturday, that would stand the strain and test, to which he subjected a Buggy taken from our general stock. We duplicate any manufacturers guarantee, and sell you a Top Buggy for \$45.00. other dealers ask you \$60.00 and \$65.00 for the same grade of buggies. Do you want to see buggy prices reduced to a legitimate profit? If so come and see us.

BARBED FENCE WIRE.

Genuine Glidden pattern runs a rod to the pound. Our price on Barbed Wire will stir things up just as much as our buggy prices have.

LAWN MOWERS.

That run easily and do perfect work—guaranteed.....\$3.00
We don't advertise Lawn Mowers at cut prices, and when you come for one, tell us our price is \$5.00. But we sell at advertised price.

"EASY RUNNING CRAWFORDS"

Is the way good judges of Bicycles refer to our Bicycles. We sell to you on easy payments, and guarantee each wheel for the entire year. A 60 day guarantee is about as good as nothing— \$25.00, \$35.00 AND \$40.00

<p>Barbed Wire</p> <p>AT LAST SEASON'S PRICE</p>	<p>Lawn Mower</p> <p>\$3.00 \$3.25</p>	<p>Bicycles</p> <p>\$25.00, \$35.00, \$40.00.</p>
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EVENSON BROS.

CARLAND & STONE'S PATENT

ing about 6 x 9 inches. The reference in the above advertisement to "Mr. Dobbins' invitation" probably calls for some explanation, which is given in the following advices kindly furnished by the firm:

On April 1 we put in a stock of Buggies (our first) and advertised it very generously.

In this ad. we promised to reduce Buggy prices \$15 to \$30 and we kept our word.

Our competitors repeatedly charged us with handling inferior goods and that caused us to issue a circular to the effect that a representative of the factory would be with us on a certain day and he would subject one of our Buggies to certain tests in front of our store, and if anybody had a Buggy that would stand the same tests without breaking, Mr. Dobbins would present that party with a Buggy free of charge.

No one accepted our challenge and the following week we ran the ad. "No One Accepted."

The offer of Barb Wire "at last season's price" was made possible by the fact that the firm had on hand a carload of the Wire purchased last November, which was used as a "leader."

In a late issue of their local paper, besides their regular announcement on the last page they occupied two inside pages, in one of which attention was strikingly drawn to a number of seasonable goods such as Refrigerators, Hammocks, Bicycles, &c. The other page called attention to but two lines of goods, and extending across the top was the heading

ness. This collection of advertisements is intended to assist the Hardware merchant in making the advertising part of his business pay. Scarcely one advertisement in the whole collection but can be used by any Hardware dealer by changing possibly a few words. It is intended that these may be torn out separately and given to your printer for copy, thus enabling him to "set" it up so it will attract attention. Change your

A GREAT SUCCESS!



Our Buggy Sale of last Saturday was a grand success.

which is about one fourth the size of the original. The greater part of the rest of the page was devoted to a terse statement of what they were doing in the Buggy line and their intended taking up of the sale of Plows, Harrows, Mowers, Binders, &c. The remainder of the page treated of the Garland Stoves.

FIFTY ADVERTISEMENTS FOR HARDWARE MERCHANTS.

Under the above title C. M. Doxsee, Algona, Iowa, issues a collection of advertisements which are designed to assist Hardwaremen in advertising their business. Mr. Doxsee is a merchant of experience, and our readers may recall him in connection with several unique and attractive window displays which we have illustrated in our columns. As giving an idea of Mr. Doxsee's style we reproduce herewith one or two of his advertisements, which are slightly reduced in size. Mr. Doxsee presents his collection of advertisements with the following introductory remarks:

The advertisements contained in these pages have not been manufactured to sell. They have been used in the local papers to advertise my own business with satisfac-

"ad." every week or two and watch results. We will sell to but one merchant in a town.

It's a Disgrace . . .

That there should be living in Algona women who are obliged to wash fifty-two times every year, and wring their clothes by hand, as Eve did over 4000 years ago. We are determined that not

One Woman . . .

Shall be without a good clothes wringer if price heretofore has prevented such ownership. Until Feb. 1st we will sell a good steel frame wringer that has been sold everywhere for \$2 for only

\$1.39, . . .

Only 10 cents a day for two weeks. At this price we will sell but one wringer to one party, our object being to benefit as many families as possible.

Advertising a Clothes Wringer.

The price of the publication is 50 cents, or at the rate of 1 cent an ad.

Sidney Shepard & Co.'s Catalogue.

SIDNEY SHEPARD & CO., Buffalo, N. Y., have issued catalogue No. 63, a handsome bound volume of 240 pages, showing the goods made by the Buffalo Stamping Works, of which they are the proprietors, as well as other goods they deal in. In a general way are comprehended Household Specialties, Aluminum Ware, Stamped, Pieced, Japanned and Enameled Ware, Milk Cans, Freezers, Coolers, House Furnishing Goods and Tinners' Tools, Machines and Supplies. This concern, established in 1836, have branch houses in New York, Chicago, St. Louis, Kansas City, Denver and Seattle.

Morley Brothers.

THIRTY-SIX years ago, in June, 1863, the firm of Morley Brothers started in business in Saginaw, Mich., in a wooden building, set on posts in the swamp. In 1865 they moved into a brick building on the river, and in 1882 moved into the present large and commodious quarters. In February, 1883, the firm of Morley Brothers were incorporated, with a paid up capital of \$350,000, and the following officers were elected: G. W. Morley, president; E. W. Morley, vice-president, and A. H. Morley,

The Flies are Sure to Come



before the summer is over, and if you are not careful they will catch you napping. Expense is no excuse for harboring a lot of troublesome flies in your kitchen and dining rooms when you can get a

Heavy Screen Door

the best that can be bought in the market, for an even DOLLAR, with a pair of spring hinges and a good door pull thrown in. Screen wire is so cheap that you cannot afford to use anything else or go without.

A Screen Door Advertisement.

tory results. Advertising pays if it is properly done. Most merchants are too busy with other details to give sufficient attention to the advertising feature of their busi-

secretary and treasurer. The above men fill the same positions to-day, and the firm are doing a large manufacturing and jobbing business and selling goods in all the States and territories, also in Canada, besides doing business with foreign countries.

John S. Leng's Son & Co.'s Catalogue.

JOHNS S. LENG'S SON & CO. of New York and Philadelphia, include in their 1899 catalogue a large and complete line of Bicycle materials and sundries in addition to Weldless Steel Tubing and Manufacturers' and Repairers' Tools. They are agents for Weldless Steel Tube Company, Birmingham, England, manufacturers of the original "Weldless" brand of Weldless Cold Drawn Steel Tubes. They are also New York and Philadelphia headquarters for Indianapolis Chain & Stamping Company's Chain, Indiana Novelty Mfg. Company's Wood Goods, Crosby & Mayer Company's Stampings, Bascaman Mfg. Company's Grips, Brennan Handle Bar Company's Adjustable Handle Bars, Snell Cycle Fittings Company's Bicycles, Excelsior Needle Company's Spokes and Nipples, Morgan & Wright's Tires, Barnes Tool Company's Wrenches, Springfield Drop Forging Company's Machined Forgings and Toledo Tube Company's Brazed Goods.

Keuffel & Esser Company.

KUEFFEL & ESSER COMPANY, 127 Fulton street and 42 Ann street, New York, with branches in Chicago and St. Louis and factories at Hoboken, N. J., have issued their 1899 catalogue and price-list, showing the extensive line of Drawing Materials and Surveying Instruments of which they are manufacturers and importers. The catalogue is a well printed book of more than 400 pages, and contains a considerable amount of fresh matter in the shape of new goods and additional descriptive material. They direct special attention to their well-known line of Engineering and Surveying Instruments and continue to make, and list in the catalogue, a number of instruments for ordinary work at proportionately lower prices. They also make instruments of precision to order according to drawings and specifications.

Price-Lists, Circulars, &c.

SAWYER TOOL COMPANY, Fitchburg, Mass.: Catalogue C of Mechanics' Tools and Hardware specialties.

McKINNON DASH COMPANY, Buffalo, N. Y.: Dashes, Fenders, Roll Up Straps, Prop Block Washers and Shaft Leathers.

ERIE SPECIALTY COMPANY, Erie, Pa.: Hardware and Advertising Specialties.

ELECTRIC WHEEL COMPANY, Quincy, Ill.: Electric Metal Wheels, Wagons, Harness, Feed Cookers, &c.

DETROIT VALVE & WASHER COMPANY, Detroit, Mich.: Leather Washers and Valve and Plunger Leathers

CORBIN CABINET LOCK COMPANY, New Britain, Conn.: Modern Post Office Equipments.

A. LESCHEN & SONS ROPE COMPANY, St. Louis, Mo.: Wire Rope and Cordage of every description.

E. STEBBINS MFG. COMPANY, Springfield, Mass.: Twin Comet Lawn Sprinkler.

Trade Items.

ON and after June 1 the factory of the Dayton Screw Company, Dayton, Ohio, will be operated and known as the Western factory of the Russell & Erwin Mfg. Company, New Britain, Conn., and New York, who, in fact, have been the sole owners since 1885.

OWING to the demand for their Alaska Stove Hardware, Troy Nickel Works, Albany, N. Y., announce, under date June 10, that they will not be able to close their factory July 1 for inventory, as has been their custom in former years. All orders will have full attention and there will be no delay on that account.

BALDWIN, ROBBINS & CO., 115 Milk street, Boston, Mass., well-known jobbers in Hardware, have leased the premises 97-103 Pearl street, which is a favorable location in the Hardware district of Boston. They will occupy the entire five floors and basement of the building, and will consolidate stock, storage and business departments under one roof. The first floor of 101 and 103 will be used as a salesroom and the first floor of 97 and 99 as shipping rooms. The move was necessary to provide for their increasing business, and the new location

will afford them much more room and much greater convenience than the old store. They expect to occupy the new quarters during July and will probably be completely moved before August. The original concern of which Baldwin, Robbins & Co. are successors was established in 1846, and the partners of the present firm are Thomas H. Baldwin, John H. Robbins, Austin H. Decatur and William A. Hopkins.

CHARLES K. PADDOCK, 89 Reade street, New York, exporter of Wagon Materials, went to Europe on the "Campania" on her last voyage. This is the latest of several trips to the Continent in the interest of his business.

ALDER & BOYD, 37 Warren street, New York, manufacturers' export representatives, have issued another price current of the goods made by the manufacturers they represent. In it are illustrated and described the goods they market, the descriptions being accompanied by lists and actual discounts, together with much other information as to sizes, quantities in original packages, weights, measurements, &c., indispensable to foreign importers. This catalogue is prepared exclusively for circulation abroad, not with a view to getting direct orders, but to bring the goods they sell to the attention of foreign buyers so they can buy through their regular representatives in this country.

JOHN H. HEIMBUCHER, St. Louis, will attend the convention of the Southern Hardware Jobbers' Association at Atlantic City, June 14 to 17, representing the interests of the Franz Krein Chain Company, the National Screw & Tack Company, C. Hager & Sons Hinge Company, Falls Rivet & Machinery Company and other manufacturers. He also intends to visit New York, Boston, Pittsburgh, Cleveland and other points.

A FEW WEEKS since the King Powder Company and the Peters Cartridge Company, Cincinnati, Ohio, issued a little booklet entitled, "Hints on King's Semi-Smokeless and Peters' Cartridges." So great, we are advised, has been the demand for this booklet that it has been necessary to issue another large edition. In view of the interest in rifle and pistol shooting, and the numerous inquiries which have been received by the above companies as to how to organize clubs, build ranges, &c., they have taken the opportunity in this new edition of giving also a good deal of information of interest to shooters under such headings as the following: Management, Rifles, Targets, German Ring Target, Columbia Target, String Measure, Marking, Scoring and Signaling, Position, Ties, General Rules, Penalties, Rules for Pistol and Revolver Shooting, Selecting and Building a Range. A number of the Targets made at the late Sportsmen's Exposition tournament are also presented. In preparing this little booklet, which is neatly gotten up, technical terms have been carefully explained, or altogether avoided, and all matters pertaining to Rifle matters made clear and plain. Copies of the booklet may be obtained by addressing the King Powder Company, or the Peters Cartridge Company.

Among the Hardware Trade

ALBANY Hardware & Iron Company, Albany, N. Y., have just opened a new store devoted exclusively to Bicycles and Athletic Goods, this part of their business having developed so rapidly that the space devoted to it in their main establishment was found entirely inadequate. The new store contains over 4500 square feet of show room space and 71 feet of show windows. Across the rear of the room is an elevated platform 35 feet long, 10 feet wide and 16 inches high. This will afford seats for their patrons, where they can overlook the entire stock. In addition to this large store the company have a Bicycle room 76 feet long and 26 feet wide for surplus stock. The Sporting Goods stock carried by the company includes Bicycles and Bicycle Sundries, Golf, Tennis, Baseball and Football outfits, Gymnasium Equipments, Ammunition, Revolvers, &c. These goods have always been carried in stock, but the greater facilities afforded in the new quarters will permit of a greater variety and larger supply than ever before.

C. E. Magee & Son, Winchester, Ind., after a business experience of 31 years, have sold out to Hode Hobbick and A. Miller. Mr. Hobbick was connected with the store for a number of years. Mr. Miller has heretofore been identified with the dry goods line, and is regarded as a good business man.

Price-Armes Company, Limited, have been organized at Roanoke, Va., with C. B. Price as president, I. F. Woody as vice-president, and C. M. Armes as secretary and treasurer. The capital stock is \$14,000, fully paid up. The company will wholesale and retail Hardware, Stoves, Tinware, &c.

Ballantine Hardware Company, Warsaw, N. Y., have been incorporated, succeeding at the old stand Morris & Co., whose business has recently been purchased. The company's officers are as follows: W. J. Ballantine, president; O. V. Emery, secretary, and C. E. Van Doorn, treasurer. The Morris store will be remodeled and many new lines of goods added. The company will carry on a wholesale and retail business in Hardware, Stoves, Plumbing Goods, Seeds, &c.

M. L. Pilcher has purchased the business of J. D. Boughman, at Cedarville, Kan.

J. J. Trerise, Randolph, Vt., will soon remove to new quarters in the Smith Block, nearing completion.

Alexander Davidson has opened a store at East Bloomfield, N. Y., with Chas. Donahue as manager. The post office is Holcomb.

Jay Barton & Co. have opened a new store at Gorman, Texas, handling Shelf and Heavy Hardware, Stoves and Tinware, Agricultural Implements, Sporting Goods, &c.

Jacob Walland & Son have succeeded Walland & Freiligh, at New Sharon, Iowa.

Wells & Annis have purchased the business of the Northern Hardware Company, Duluth, Minn., but will continue under the same style and under the same articles of incorporation.

Bothwell & McFarland, Hannibal, N. Y., have built a two-story addition on one side of their store, the first floor of which will be devoted to stock of Barb Wire, Farming Implements, &c., the second floor serving as a Bicycle repair shop and storeroom. The firm refer to business as the best in their history.

Pillow & Moore have purchased the wholesale and retail business of J. C. Barlow, at Helena, Ark.

Geo. T. Stone is the proprietor of a new store, at Winfield, W. Va. Mr. Stone is handling a stock comprising Shelf and Heavy Hardware, Stoves, Tinware and Farming Implements.

J. H. Hitch, Patoka, Ind., whose store was destroyed by fire some time since, is now comfortably settled in a new brick building.

S. A. Ferguson, formerly of the firm of Ferguson & Fender, Waitsburg, Wash., and his son, have opened up in the Hardware and Implement business, at Dayton, under the style of Ferguson & Son.

F. Miller & Co. have succeeded Miller & Grout, at Chelbina, Mo.

Swanger Bros., Mishawaka, Ind., have dissolved partnership, and J. Q. Swanger, Jr., is continuing at the old stand. Mr. Swanger will make improvements in the store and enlarge his plumbing and tin shop.

Shahan & Cozad have purchased the business of H. F. Bosquet, Taintor, Iowa.

Suisun Implement Company, Suisun, Cal., have doubled the size of their Hardware department.

H. S. Diesem, La Moure, N. D., has added a line of General Hardware to his former stock of Farm Implements.

Herr & Snavelly have purchased the business of Isaac Diller's Sons, at Lancaster, Pa.

H. C. Wilcox has sold out his business at West Concord, Vt., to Robert J. Bennett, who will continue at the old stand.

Colliver & Huffman have succeeded Priest & Hart in the Hardware, Stove, Farm Implement and Sporting Goods business, at Bainbridge, Ind.

Norris & Loring, Cedar Rapids, Iowa, have incorporated under the style of Norris & Loring Hardware Company. C. L. Faust, lately with the A. Tredway & Sons Hardware Company of Dubuque, has become interested in the concern and will represent them on the road. The company are wholesale and retail dealers in Shelf Hardware, Stoves and Tinware.

W. H. Briggs & Son, Valdosta, Ga., have dissolved, the senior member retiring. The business will be continued by Mr. Briggs' son, under the style of W. H. Briggs' Son.

B. F. Riley & Son, Summerville, Mo., are erecting a new building, which they will occupy on completion.

Geo. Tritch Hardware Company, Denver, Colo., have recently purchased a new warehouse, to meet the requirements of their increasing business.

Mitchell-Powers Hardware Company, Bristol, Tenn., have incorporated under that style with a capital stock of \$100,000. Their business is both wholesale and retail, and their line comprises Shelf and Heavy Hardware, Stoves and Tinware, Sash, Doors, Paints, Oils, Glass, Brushes, &c. They expect to occupy their new building (Mitchell & Powers' Block), now in course of erection, about September 1. The building is 45 x 150 feet, five stories high, with warehouse, 45 x 90 feet, two stories.

Terry Bros. have succeeded Forest W. Terry, at La Monte, Mo.

A. W. Jones & Co. have succeeded D. M. Cotton in the retail Hardware, Stove, Tinware and Sporting Goods business, at Frankfort, S. D.

Brown & Crowell have succeeded O. J. Brown & Son in the Hardware and Agricultural Implement business, at Estherville, Iowa.

Withers & Fickle, Abingdon, Va., have been succeeded by Withers Hardware Company.

Westman & Rothschild, Oscaloosa, Iowa, have been succeeded by Handler & Rothschild.

R. M. Jenks is successor to D. D. Dorn & Son, at Bedford, Iowa. Mr. Jenks was formerly engaged in the same line, at Sanborn and at Blockton. At the latter place he was also identified with the banking business.

E. E. Gridley has purchased the Hardware business of James Campbell, at West Chicago, Ill.

Woodard & Co., Golden City, Mo., have sold out to Stemmons & Co., Avilla, to which point the stock has been removed.

Loree & Frantz Hardware Company, Limited, have succeeded E. Nettleton, at Nampa, Idaho.

The corporate name of Heusinger-Basse Hardware Company, San Antonio, Texas, has been changed with the authority of the State Department to the Heusinger Hardware Company.

In view of the circulation of some exaggerated reports concerning the matter, Scott Hardware Company, Paducah, Ky., advise us that a fire recently occurred in the building adjoining theirs, but the damage suffered by them was insignificant, and there was no interruption to their business.

John J. Moore, dealer in Hardware, Stoves, House Furnishing Goods, &c., Poughkeepsie, N. Y., is also manufacturing Moore's Sanitary Milk Bottle and Bottle Cap. The Cap is of compressed prepared paper, and made to fit the top of the Bottle.

Miscellaneous Notes.

Fine Tool Chests.

C. E. Jennings & Co., 101 Reade street, New York, make a line of tool chests for professionals and amateurs, both with and without tools, and frequently get orders for special chests, one of which they have just finished and are about to ship. It is beautifully made of selected antique oak, handsomely marked, the grain being brought out by fine polishing. The outside dimensions are 35 x 17½ x 20¾ inches. The top is mitered and paneled, the joints are dovetailed and all work done by hand. The trimmings, including chest handles, hinges, cylinder lock and hinged lid supports, are of bronze. Inside are two sliding trays and a saw rack. The chest weighs 80 pounds, cost \$60, without any tools, and was ordered by a gentleman amateur.

The Lane Steel Jack.

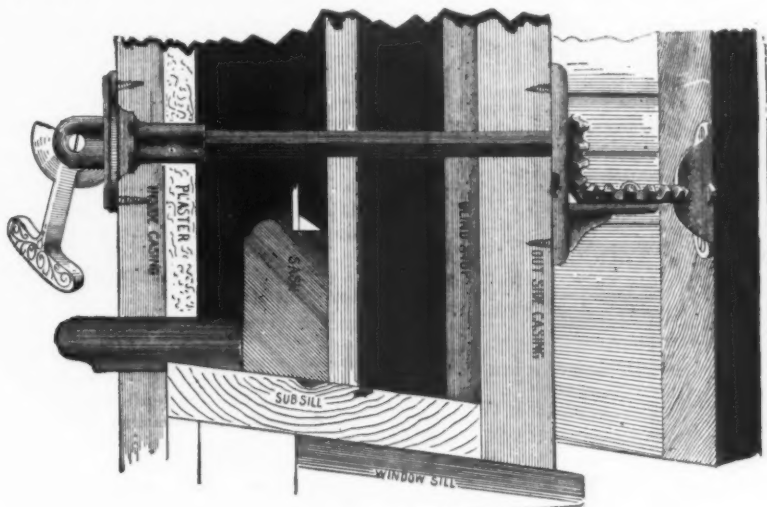
Lane Bros. Company, Poughkeepsie, N. Y., who, among other goods, are making Lane's steel jacks, have added a new and smaller size, known as No. 0. This size is referred to as available for a great amount of light work and is offered at such a price that a large sale of it is confidently expected by the manufacturers. All sizes of the jacks are now also offered galvanized. The company advise us that their trade in this line is steadily increasing.

Portable Carbide Holders.

Bridgeport Brass Company, 19 Murray street, New York, are making for the trade portable carbide holders, in which cyclers can carry a reserve supply of carbide for acetylene gas bicycle lamps. They are seamless drawn brass tubes or cylinders, polished and nicked, $1\frac{1}{8}$ inches in diameter, one size being $2\frac{3}{8}$ inches long, with a larger

Ocean Churn.

Illinois Cutlery Company, Decatur, Ill., are manufacturing the Ocean churn, here illustrated. It is made of XXX tin, is 7 x 24 inches in dimensions and weighs crated 9 pounds. The dasher is constructed of tough wood and

*Pitney Shutter Worker.*

size the same diameter $4\frac{1}{4}$ inches in length. Tops and bottoms with slightly rounded corners are identically the same, an inner endless tube as long as the top being

works on the principle of the screw propeller of a steamship, rapidly revolving to the left on the downward stroke, instantly reversing to the right on the up stroke. Reference is made by the manufacturers to the necessity of a free mixture of air to insure good churning, which, it is claimed, the principle of this dasher assures, rendering the aeration perfect. It is unnecessary to raise the dasher

*Dig-Ezy Potato Fork.*

brazed into the bottom half for the top to slide on. The cylinders are light and strong, the very close fit excluding air or moisture and so keeping the carbide from deterioration until used.

higher than the surface of the cream, as the benefits of the centrifugal as well as horizontal motions are received

Auger Bit Boxes.

C. E. Jennings & Co., 101 Reade street, New York, are now putting up all their best auger bits in full sets of $32\frac{1}{2}$ quarters in dovetailed antique oak boxes finished natural. Spiral fasteners grip the shanks and soft wood end pieces both top and bottom hold the worm screw end of each bit. In the center of the top outside is a nicked brass plate with a fac-simile of the firm's signature, followed by the address, the whole appearance being very attractive and the goods more salable.

Pitney Shutter Worker.

Sessinghaus Novelty Company, 706 Chestnut street, St. Louis, Mo., are marketing the Pitney shutter worker, as shown herewith. It is designed for manipulating shutters from an interior without raising windows, removing screens, or disturbing flowers, curtains or hangings, by merely turning a lever on the inner side. In this way shutters can be locked open, shut or at any intermediate point with little effort or loss of time. On the inside the only part visible is a nickel plated handle of an ornamental character. A cam on the handle, pressed down, holds the shutter in place at any point, preventing slamming or rattling. It operates on the gearing principle and requires little muscular effort. It can be used in connection with old or new work.

Dig-Ezy Potato Fork.

The Iowa Farming Tool Company, Fort Madison, Iowa, are making the Dig-Ezy potato fork, here shown. The tines are so shaped as to enter the earth easily, break up the soil and separate the potatoes from the dirt, while the shape of the fork enables the operator to put the potatoes in baskets without touching them with the hands. The tool is light and strong, the tines have blunt points and are scoop shaped, the handles being XX bent with capped ferrules.

*Ocean Churn.*

and there is no splashing. It can be rapidly cleaned by churning a pailful of warm water when through churning. Each churn is separately crated.

Fortuna Design.

Russell & Erwin Mfg. Company, 43-47 Chambers street, New York, have put on the market the Fortuna design in a complete line of builders' hardware as here shown. It is intended for a good grade of work at a moderate price, and is furnished in connection with front and vestibule doors, sliding doors, push buttons,

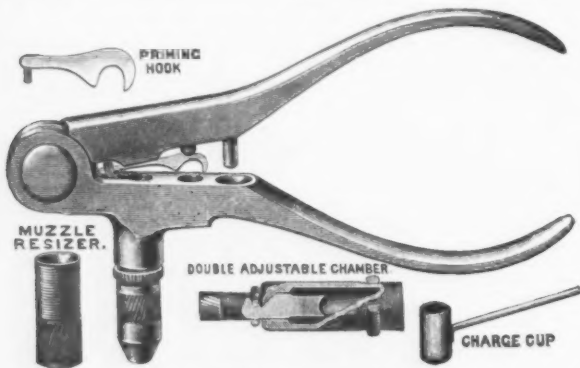


Fortuna Design for Door Set.

sash lifts, push plates, &c. It is made of real bronze wrought metal, and can be had in finishes 2½, 7½ and 11 of this company.

A New Reloading Tool.

After the surrender of Cuba and Porto Rico many thousands of the Spanish Mauser rifles were brought into the United States. The long range and accuracy of these powerful small arms was well established during the late war with Spain, and they are now being used for hunting and target purposes. Most of those who possess these and other similar arms have found the regular ammunition costly and altogether too powerful for sporting purposes. Frequent demands have been made for reloading tools and bullets for medium and short range. Foreign made shells, not being reloadable, caused the Union Metallic Cartridge Company of Bridgeport Conn., to make them



Ideal No. 10 Special Reloading Tool.

for these foreign arms, and the Ideal Mfg. Company of New Haven, Conn., now announce that they are prepared to furnish reloading implements and molds for bullets specially designed by them, as here illustrated. This new tool will be called the Ideal No. 10. It was designed to operate on cartridges having no flange or head, commonly called headless shells. This form of shell or case is referred to as growing in popularity. Nearly all the new arms now being made are designed for ammunition of this description; as shells thus formed take up less space, the mechanism in the arms may be smaller and more compact. Many of the later military and naval arms, such as the United States Navy 0.236, Mauser 7 mm., Mannlicher 8 mm., 0.303 British, 30 40 United States Army (Krag-Jorgensen), &c., were originally made for cartridges having heads considerably larger than the diameter of the body of the shell. Later issues of the arms mentioned were modified for using headless shells, so that there are

now in use cartridges of both kinds. The United States navy rifle, now called 6 mm., is made to use the headless shells, and it is stated that the Government contemplates changing the 30 40 United States army rifle so that headless cartridges may be used in it. The fact of there being many rifles of these original patterns now in use requiring ammunition was taken into consideration, and this new No. 10 special tool was constructed to operate equally well with either headed or headless shells. These tools can now be furnished for the 6 mm. United States navy, 7 mm. Mauser, 8 mm. Mannlicher and 0.303 British. The Ideal cylindrical adjustable mold for paper patched bullets can also be furnished for all of the above mentioned arms, also single molds, or Perfection adjustable molds, for the medium and short range grooved bullets similar to illustration.

F. L. Denio, successor to Hiram J. Wilmarth, at Sand Hill, Mich., has built a new brick store in which he is now comfortably settled.

Clark & Spraker have succeeded Clark & Clark, at Lowell, Mich.

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Current Hardware Prices.

REVISED JUNE 13, 1899.

General Goods.—In the following quotations General Goods—that is, those which are made by more than one manufacturer—are printed in *Italics*, and the prices named represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. They apply to such quantities of goods as are usually purchased by retail merchants. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

Special Goods.—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, and are in many cases their regular prices to the small trade, lower prices being frequently quoted to the fair retail trade, either by the manufacturers or by the jobbers.

Cut Prices.—In the present condition of the market, while many advanced prices are announced by the manufacturers, lower prices are often made by the wholesale trade who have stocks on hand purchased at former quotations.

Names of Manufacturers.—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE INDEX SUPPLEMENT (April 6, 1899), which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron, Hardware and Machinery trades.

Standard Lists.—A new edition of "Standard Hardware Lists" is in preparation and will contain the list prices of many leading goods.

Additions and Corrections.—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

Adjusters Blind—

Domestic, 7 doz. \$3.00... 33¢@39¢&10¢
North's... 10¢
Zimmerman's—See Fasteners, Blind.

Window Stop—

Ives' Patent... 40¢
Taplin's Perfection... 5¢

Ammunition—See Caps, Cartridges, Shells, &c.

Anvils—American—

Eagle Anvils... 7¢@7½¢
Hay-Budden, Wrought... 8¢@8½¢
Horsehoe brand, Wrought... 9¢@9½¢
Samson... 10¢
Trenton, Wrought... 11¢@11½¢

Imported—

Armstrong's Mouse Hole... 8¢@9¢
Peter Wright's... 10¢@11¢

Anvil, Vise and Drill—

Millers Falls Co., \$18.00... 20¢

Apple Parers—See Parers, Apple, &c.

Augers and Bits—

Common Double Spur... 75¢@10¢@80¢
Boring Machine Augers... 75¢@10¢@80¢
Car Bits, 12-in. twist... 60¢@10¢@70¢@10¢

Jennings' Pattern—

Auger Bits... 70¢@5¢@70¢@10¢
Car Bits... 60¢@60¢@10¢

Ford's Auger and Car Bits... 40¢@10¢@40¢@10¢@10¢

Forster Pat. Auger Bits... 25¢
C. E. Jennings & Co.:
No. 10 ext. lip. R. Jennings' list... 40¢@40¢@10¢

No. 30. R. Jennings' list... 50¢@10¢@90¢

Russell Jennings... 35¢@10¢@25¢

L'Hommiedieu Car Bits... 15¢@15¢@10¢@5¢

Pugh's Black... 20¢

Pugh's Jennings' Pattern... 35¢

Snell's Auger Bits... 70¢

Snell's Bell Hangers' Bits... 5¢

Snell's Car Bits... 60¢@10¢@70¢

Wright's Jennings Bits (R. Jennings list)... 50¢

Bit Stock Drills—

Standard list... 60¢@10¢@10¢@70¢

Expansive Bits—

Clark's small, \$18; large, \$20... 50¢@10¢

Lavigne's Clark's Pattern, No. 1, 7 doz., \$26; No. 2, \$18... 50¢@10¢

Steer's No. 1, \$28; No. 2, \$18... 40¢@40¢@5¢

Swan's... 40¢@40¢@10¢

Gimlet Bits—

Common Double Cut... gro. \$2.75@2.85

German Pattern... gro. \$5.00

Double Cut, makers' lists... 50¢@50¢@10¢

Hollow Augers—

Bonney's Adjustable, 7 doz... \$18.00

Douglase's... 33¢@33¢@10¢

Stearns', Common, No. 6... 10¢

Stearns', all other numbers... 20¢@10¢

Ship Augers and Bits—

Ford's... 40¢@10¢@40¢@10¢@10¢

Snell's... 40¢@10¢@5¢

L'Hommiedieu's... 15¢@10¢@15¢@10¢@10¢

Watrous'... 40¢@40¢@10¢

Awl Hafts, See Hafts, Awl.

Awls—

Brad Awls:
Handled... gro. \$2.75@3.10

Unhandl'd, Shouldered gro. \$5¢@70¢

Unhandl'd, Patent... gro. 70¢@75¢

Fig Awls:
Unhandl'd, Patent... gro. 35¢@35¢

Unhandl'd, Shouldered, gro. \$5¢@70¢

Scratch Awls:
Handled, Common, gro. \$3.25@3.75

Handled, Socket... gro. \$11.00@12.00

Awl and Tool Sets—See Ssts, Awl and Tool.

Axes—
First Quality, best brands... \$5.00@5.25

First Quality, other brands... \$4.25@4.75

Jobbers' Special Brands, good quality... \$4.00@4.75

Cheap Handled Axes... \$4.75@5.25

Beveled, add 25¢ doz.

Axle Grease—See Grease, Axle.

Axles—

Iron, Steel.
Concord, loose collar... 5¼¢ 5¢
Concord, solid collar... 5¼¢ 5¼¢
No. 1 Common... 4¢ 3¼¢
No. 1½ Com. New Style... 4¼¢ 4¼¢
No. 2 Solid Collar... 4¼¢ 4¼¢
Nos. 7, 8, 11 to 14... 60¢@5¢
Nos. 15 to 18... 60¢
Nos. 19 to 22... 70¢

Balances—

Sash—
Caldwell low list... 30¢
Pottman's... 65¢
Vanderbilt... 30¢
Spring—
Spring Balances... 50¢@50¢@55¢
Chatillon's Light Spz. Balances... 50¢
Chatillon Straight Balances... 40¢@10¢
Chatillon Circular Balances... 50¢@10¢
Chatillon's Large Dial... 45¢

Barb Wire—See Wire, Barb.

Bars—Crow—

Steel Crowbars, 10 to 40 lb., per lb... 3¼¢@3¼¢

Beams, Scale—

Scale Beams, List Jan. 12, '83... 40¢@10¢@50¢

Chatillon's No. 1... 30¢

Chatillon's No. 2... 40¢

Beaters—Egg—

Dover Pattern, Family Size... gro. \$5.50@5.75

Spiral... gro. \$5.00@5.25

Dover (Standard Co.), No. 10, 7 gro. \$1.50; No. 5, \$1.75; No. 15, \$1.00

Dover (Tap in M. Co.), No. 50, 7 gro. \$5.25; No. 100, \$1.25; No. 102, \$5.00; No. 150, \$1.50; No. 152, \$2.00; Lyon's, Standard 12... 7 doz. \$1.75

Wonder (S. S. & Co.)... 7 doz. 75¢

Bellows—

Blacksmith—

Standard list... 70¢@70¢@10¢

Inch... 30 32 34 36 38 40

Each... \$4.00 4.25 5.00 5.50 6.25 7.50

Extra Length:
Each... \$4.75 5.25 5.75 6.50 7.40 8.75

Molders—

Inch... 9 10 11 12 14 16

Doz... \$6.25 6.75 8.00 9.00 11.50 13.75

Doz... \$5.40 5.75 4.00 4.75 5.50 6.40

Bells—Cow—

Ordinary goods... 75¢@10¢

High grade... 70¢@70¢@10¢

Jersey... 75¢@75¢@10¢

Texas Star... 50¢@10¢

Door—

Gong, Yankee... 60¢@10¢

Ho. e. R. & E. Mfg. Co.'s... 50¢@10¢

Lever and Pull, Sargent's... 45¢@10¢@45¢@10¢@5¢

Hand—

Hand Bells, Polished... 65¢@10¢@70¢

White Metal... 65¢@10¢@70¢

Nickel Plated... 50¢@5¢@50¢@10¢@5¢

Swiss... 65¢@65¢@10¢

Miscellaneous—

Farm Bells... lb. 2¢

Steel Alloy Church and School... 50¢@10¢

Belting

Common Standard... 75¢@75¢@10¢

Standard... 70¢@70¢@10¢

Extra... 60¢@10¢@60¢@10¢@5¢

High Grade... 60¢@60¢@10¢

Leather—

Extra Heavy, Short Lap... 50¢@10¢

Regular Short Lap... 60¢@60¢@5¢

Standard... 60¢@10¢@60¢@10¢@5¢

Light S., mid... 70¢@10¢

Bench Stops—See Stops, Bench

Benders and Upsetters, Tire—

Brettell Tire Upsetter, \$15... 50¢

Green River Tire Benders and Upsetters... 30¢

Stockard's Lightning Tire Upsetters... 40¢@50¢

Bicycle Goods—

Lane's Cycle Hanger... 33¢@35¢
Jo. m. S. Leung's Son's 1899 list:
Balls... 50¢
Chain... 50¢
Parts... 50¢
Spokes... 50¢@10¢

Bits—

Auger, Gimlet, Bit Stock Drills, &c.—
See Augers and Bits.

Bit Holders—See Holders.

Blind Adjusters—See Adjusters, Blind.

Blind Fasteners—See Fasteners, Blind.

Blind Staples—See Staples, Blind.

Blocks—Tackle—

Common Wooden... 75¢@10¢@75¢@10¢@5¢
Eddy's All Steel, Common Bushed... 70¢
Eddy's All Steel, Bronze Bushed... 60¢@5¢
Hartz All Steel, Common Bushed... 50¢@10¢
Hartz All Steel, Bronze Bushed... 50¢@10¢
Ford's Star Brand, Self Lubricating... 70¢
Hollow Steel, Ford's Pat. Star Brand... 50¢@10¢
Lane's Pat. Adj., Perfect Safety and Junior... 30¢
Stowell's Novelty, Mal. Iron... 50¢@10¢
See also Machines, Hoisting.

Boards, Stove—

1899 List:
2 in... 90¢
Other... 40¢

Boils—

Carriage, Machine, &c.—
Common, list Jan. 30, '95... 65¢@10¢

Norway Iron, \$3.00, list Oct. 7, '84... 75¢@10¢@75¢@10¢@5¢

Phila. Eagle, \$3.00 list... 80¢@80¢@15¢

Bolt Ends, list Jan. 30, '95... 65¢@10¢@10¢

Machine list June 12, '96... 65¢@10¢@10¢

Door and Shutter—

Cast Iron Barrel, Round Brass Knob:
Inch... 3 4 5 6 8

Per doz... \$9.27 .50 .53 .53 .66

Cast Iron Bottom, Japanned:
Inch... 6 8 10

Per doz... \$0.83 1.05 1.65

Cast Iron Chain, Flat, Japanned:
Inch... 6 8 10

Per doz... \$1.10 1.32 1.87

Cast Iron Shutter, Brass Knobs:
Inch... 6 8 10

Per doz... \$0.49 .77 .88

Wrought Barrel Brass Knob:
Inch... 3 4 5 6 8

Per doz... \$0.44 .50 .61 .70 1.28

Wrought Barrel, Bronzed... 50¢@10¢@60¢

Wrought Flush, B. K... 50¢@20¢@70¢

Wrought Shutter... 60¢@60¢@10¢@5¢

Wrought Square Neck... 60¢@5¢@75¢

Wrought Sunk... 60¢@60¢@10¢

Ives' Patent Door... 65¢@65¢@10¢

Stove and Plow—

Plow... 70¢@70¢@10¢

Stove, list August 27, 1898... 67¢@70¢

Note.—See Trade Report.

Tire—

Common, list Feb. 28, '83... 67¢@70¢

American Screw Company:
Norway Phila., list Oct. 16, '84... 75¢

Eagle Phila., list Oct. 16, '84... 80¢

Bay State, list Feb. 28, '83... 67¢

Franklin Moore Co.:
Norway Phila., list Oct. 16, '84... 75¢

Eclipse, list Feb. 28, '83... 67¢

Port Chester Bolt & Nut Company:
Empire, list Feb. 28, '83... 67¢

Keystone Phila., list Oct. '84... 80¢

Norway Phila., list Oct. '84... 75¢

Borers, Tap—

Borers Tap, Ring, with Handle:
Inch... 1¼ 1½ 1¾ 2

Per doz... \$3.75 4.75 5.25 6.75

Inch... 2¼ 2½ 2¾ 3

Per Doz... \$8.00 11.00

Enterprise Mfg. Co... 25¢@30¢
No. 1, \$1.25; No. 2, \$1.65; No. 3, \$2.50 each.

Boring Machines—See Machines, Boring.

Braces—

Note.—Most Braces are sold at not prices.

Common Ball, American... \$1.10@1.20

Barber's... 80¢@80¢@10¢

Fray's Genuine Sportford's... 50¢@10¢@5¢

Fray's No. 70 to 120, 81 to 123, 207 to 414... 50¢@10¢@5¢

F. S. & W. Co., Peck's Patent... 60¢@10¢@5¢@80¢@10¢@10¢

Brackets—

Cast Iron, plain... 75¢@75¢@10¢

Wrought Steel... 70¢@10¢@75¢

Bradley's Wire Shelf... 75¢@10¢@80¢

Bright Wire Goods—See Wire.

Broilers—

Wire Goods Co... 75¢@75¢@10¢

Buckets, Well and Fire—

See Pails

Bucks, Saw—

Hoosier... 7 gro. \$22.00@24.00

Bull Rings—See Rings, Bull.

Butts—Brass—

Wrought list Sept., '96... 40¢@5¢@40¢@10¢

Cast Brass, Tiebout's... 50¢

Cast Iron—

Fast Joint, Broad... 60¢@60¢@10¢

Fast Joint, Narrow... 60¢@10¢@60¢@10¢@10¢</

Gimlets—

Nail, Metal, Assorted, gro. \$2.00@2.50
Spike, Metal, Assorted, gro. \$3.75@4.00
Nail, Wood Handled, Assorted, gro. \$4.30
Spike, Wood Handled, Assorted, gro. \$4.90

Glass, American Window

List Jan. 1, 1898.

Small lots from store:
Eastern.....80¢@20¢
Western.....80¢@20¢
From Factory, with Frt. Allowance:
Carloads.....80¢@20¢
1000 boxes or more, Gulf Ports.....85¢@10¢
3000 boxes or more.....85¢@21¢
5000 boxes or more.....85¢@25¢

Glue—Liquid, Fish—

List A, Bottles or Cans, with Brush.

List B, Cans (½ pts., pts., qts.).....37¢@50¢

List C, Cans (½ gal., gal.).....33¢@48¢

List D, Cans (½ gal., gal.).....25¢@45¢

Glue Pots—See Pots, Glue.**Grease, Axle—**

Allerton's Axle:
1 lb. Tins, # gr.....\$0.00
3 lb. Tin Pails, # doz., \$2.90; 5 lb., \$3.00;
10 lb., \$3.00;
25 lb. wood pails.....# doz., \$12.00
Dixon's Everlasting, 10-lb. pails, ea. 85¢
Dixon's Everlasting, in bxs., # doz. 1 lb.
\$1.20; 2 lb. \$2.00
Lower grades, special brands,
gr. \$3.00@0.50

Grindstone Fixtures—

See Fixtures, Grindstone.

Gun Powder—See Powder.**Hack Saws—See Saws.****Hafts, Awl—**

Peg Patent, Leather Top.....gro. \$4.90
Peg Patent, Plain Top.....gro. \$3.45
Seving, Brass Ferrule.....gro. \$1.50
Saddlers', Brass Ferrule.....gro. \$1.25
Peg, Common.....gro. \$1.25
Brad, Common.....gro. \$1.25

Halters and Ties—

Covert *fg. Co., Web and Rope.....45¢@25¢
Covert's Saddlery Works', 96 list.....70¢

Hammers—**Handled Hammers—**

Heller's Machinists'.....40¢@40¢
Magnetic Tack, Nos. 1, 2, 3, \$1.25, \$1.50,
\$1.75.....40¢@40¢
Pex, Stow & Wilcox.....40¢@40¢
Fayette R. Plumb:
Artisans' Choice, A. E. Nail.....40¢@12¢
Engineers' and B. S. Hand.....60¢
Machinists' Hammers.....60¢
A. E. & A. E., Bell Face Nail.....40¢@12¢
Other Nail Hammers.....50¢
Sargent's C. S. New List.....45¢@50¢

Heavy Hammers and Sledges—

3 lb. and under.....lb. 45¢ } 75¢@10¢
3 to 5 lb.....lb. 30¢ } 80¢
Over 5 lb.....lb. 30¢ }
Wilkinson's Smiths'.....94¢@10¢ lb.

Handcuffs and Leg Irons

See Police Goods.

Handles—**Agricultural Tool Handles—**

Hoe, Rake, Fork, &c. 60¢@10¢@60¢@10¢
Shovel, &c., Wood D Handle.....60¢@10¢

Cross-Cut Saw Handles—

Atkins'.....40¢
Champion.....45¢@45¢
Dixson.....50¢
Ely's Perfection.....# doz. \$3.00

Mechanics' Tool Handles—

Auger, assorted.....gro. \$2.25@2.50
Auger, large.....gro. \$2.75@3.00
Brad Axl.....gro. \$1.40@1.50
Chisel Handles:
Apple Firmer, gro. ass'd. \$2.25@
\$2.50; large, \$2.75@3.00.
Hickory Firmer, gro. ass'd. \$2.25
@2.50; large, \$2.50@2.75.
Socket, gro. ass'd. Firmer, \$1.50@
\$1.60; Framing, \$2.50@2.75.
File, assorted.....gro. \$1.00@1.25
Hammer, Hatchet, Aze, &c.....50¢@10¢
Hoe, Rake and Fork.....60¢@10¢@60¢@10¢
Shovel and Spade, Wood D Handle.....60¢@10¢
Hard Saw, Varnished, doz. 75¢@80¢
Not Varnished.....55¢@60¢
Plane Handles:
Jack, doz. 23¢@25¢; Jack Bolted.....55¢@60¢
Fore, doz. 35¢@38¢; Fore, Bolted.....70¢@75¢

Hangers—

Barn Door, New Pattern, Round Groove, Regular:
Inch.....3 4 5 6 8
Dox.....\$1.25 1.68 2.16 2.64 3.20
Barn Door, New England Pattern, Check Back, Round Groove, Regular:
Inch.....3 4 5 6
Dox.....\$3.86 3.74 4.85 6.16

Bigelow & Dowse Co.: Paragon, No. 1, \$3.50; No. 2, \$4.50; No. 3, \$5.50 # doz.**Chicago Spring Butt Co.: Oscillating.....35¢@35¢@10¢****Big Twin.....35¢@35¢@10¢****Chisholm & Moore Mfg. Co.: Advance.....60¢@10¢****Cleveland.....60¢@10¢****Baggage Car Door.....50¢****Elevator.....40¢****Railroad.....55¢****Lane Bros.: Parlor, Standard.....40¢@10¢****Barn Door, Standard.....60¢@10¢****Covered.....60¢@10¢****Cycle, # doz. \$12.00.....33¢@55¢****Parlor Door, New Model.....40¢@55¢****Lawrence Bros.: Crown.....60¢@10¢****New York.....60¢@10¢@60¢@10¢****Sterling.....60¢@10¢****McKinney Mfg. Co. No. 2, Standard, \$18.....60¢@10¢****No. 1, Special, \$13.....60¢@10¢****E. C. Stearns & Co.: Davis Parlor Door.....50¢@50¢****Gem Parlor Sliding Door.....50¢@10¢****Challenge.....50¢@50¢****Steel Single Track Parlor, #.....50¢****Royal Parlor Door.....50¢****Warner's Pat.....50¢@10¢****Warner's Imp'd Slide.....40¢@10¢****Stowell Mfg. and Foundry Co.: Badger.....60¢@10¢****Baggage Car Door.....33¢****Climax Anti-Friction.....55¢@55¢****Elevator.....60¢@10¢****Matchless.....60¢@10¢****Nansen.....60¢@10¢****Parlor Door.....50¢@10¢****Railroad.....55¢@55¢****Street Car Door.....50¢@10¢****Steel, Nos. 300, 400, 500.....45¢@15¢****Winch, West.....50¢@55¢****Zenith for Wood Track.....55¢@55¢****Taylor & Boggis Foundry Co.: Kidder's.....50¢@50¢@10¢****Van Wagoner & Williams Hdw Co.: American Trackless.....33¢@10¢****Wilcox Mfg. Co.: Aurora Steel Endless.....60¢****Roller Bearing.....80¢@10¢****Bike Steel Endless.....80¢@10¢****C. J. Roller Bearing.....60¢@10¢****Cycle Ball Bearing.....80¢@10¢****Dye Steel.....80¢@10¢****Economical Single Track.....50¢@10¢****L. T. Roller Bearing.....50¢@10¢****New Era.....60¢****O. K. Roller Bearing.....70¢****Prindle Improved.....60¢@10¢****Richards' Improved.....80¢@10¢****Richards' Single Track.....50¢@10¢****Wilcox Dwarf Roller Bearing.....40¢@10¢****Wilcox-Ives.....60¢@10¢****Wilcox Tandem Roller Bearing.....60¢@10¢****Wilcox Trolley Ball Bearing.....40¢@10¢****Wilcox Trolley Roller Bearing.....50¢****Wilcox Trolley Roller Bearing.....40¢@10¢****Wood Track.....60¢****Harness Menders—See Menders.****Harness Snaps—See Snaps.****Hasps—****McKinney's Perfect Hasp, # doz. \$1.10****40¢@10¢****Wrought Hasps, Staples, &c.—See Wrought Goods.****Hatchets—****Best Brands.....40¢@12¢@60¢@55¢****Cheaper Brands.....50¢@10¢@60¢****Hay and Straw Knives—See Knives.****Hinges—****Blind Hinges—****Lull & Forter:****No.....1 134 2 24****Dox pair.....\$0.47 1.3 2.0 3.5****1868 Old Pattern:****No.....1 3 5****Dox pair.....\$0.55 1.00 2.00****Parker.....75¢@10¢@75¢@10¢****North's Automatic Blind Fixtures, No. 2, for Wood, \$9.00; No. 3, for Brick, \$11.50.....75¢@10¢****Reading's Gravity.....75¢@10¢****Sargent's, Nos. 1, 3, 6, 11, 13, 75¢@75¢@10¢****Wrightsville Hdw Co.: Acme, Lull & Forter.....80¢@10¢****Buffalo Gravity Locking, Nos. 1, 3 and 5.....80¢@10¢****Champion Gravity Locking, No. 75.....80¢@10¢****1868, Old Pat'n, Nos. 1, 3 & 5.....80¢@10¢****Tip Pattern, Nos. 1, 3 and 5.....80¢@10¢****Double Locking, Nos. 20 and 25.....75¢****Empire, Nos. 101 and 103.....80¢****Niagara Gravity Locking, Nos. 1, 3 and 5.....80¢@10¢****Noiseless, Nos. 50, 60, 65 and 55.....80¢****O. S. Lull & Forter.....80¢@10¢****Pioneer, Nos. 060, 45 and 54.....75¢@55¢****Steamboat Gravity Locking, No. 10.....80¢@10¢****Stanley's Steel Gravity Blind Hinges, # doz. sets \$1.30.....40¢@10¢****Gate Hinges—****Clark's or Shepard's—Dox. sets:****No.....1 2 3****Hinges with Latches.....\$1.40 1.75 3.25****Hinges only.....0.92 1.40 2.60****Latches only.....0.46 1.6 3.40****New England:****With Latch.....doz. \$1.45@1.50****Without Latch.....doz. \$1.30@1.35****Reversible Self-Closing:****With Latch.....doz. \$1.70@1.75****Without Latch.....doz. \$1.30@1.35****Western:****With Latch.....doz. \$1.75@1.80****Without Latch.....\$0.75@0.78****Spring Hinges—****Holdback, Cast Iron.....gro. \$15.00.....50¢@50¢****Non-Holdback, Cast Iron.....gro. \$5.50@5.75****J. Bardsley: Bardsley's Patent Checking.....15¢****Bommer Bros.: Bommer's.....40¢****Chicago Spring Butt Co.: Chicago.....30¢****Garden City Engine House.....30¢****Keene's Saloon Door.....30¢****Lawson Mfg. Co.: Matchless Pivot.....40¢****Payson Mfg. Co.: Oblique, Dbl. Acting.....50¢@50¢****E. C. Stearns & Co.: Nos. 45 and 51.....70¢****Stover Mfg. Co.: Ideal, No. 10, Detachable, # gr. \$2.50.....\$2.50****Ideal, No. 4.....# gr. \$0.00****New Idea No. 1.....# gr. \$0.00****New Idea, Double Acting.....45¢****Van Wagoner & Williams Hdw Co.: Acme.....30¢****Columbia, No. 14.....# gr. \$8.00****Columbia, No. 18.....# gr. \$24.00****Crown.....30¢****Gem.....30¢****Knoxall.....# gr. \$9.00****Oxford.....30¢****Wrought Iron Hinges—****Strap and T Hinges, &c., list Mar. 15, 1898:****Light Strap Hinges.....70¢@10¢****Heavy Strap Hinges.....75¢@55¢****Light T Hinges.....65¢****Heavy T Hinges.....70¢****Extra Heavy T Hinges.....70¢@10¢****Rolled Plate.....70¢@70¢@10¢****Screw Hook { 6 to 12 in. lb. 3 3/4 @ 3 1/2 c****and Strap { 14 to 20 in. lb. 3 @ 3 1/4 c****{ 22 to 36 in. lb. 2 7/8 @ 3 c****Hoes—****Eye—****Scovill and Oval Pattern.....60¢@60¢@10¢****Grub list Feb. 23, 1898.....70¢@10¢@75¢****D. & H. Scovill.....35¢@55¢****Handled—****1895 or Old List:****Cotton, Field, Planters', &c.....60¢@10¢@60¢@10¢****1898 or High List:****Field and Garden.....60¢@40¢@55¢@25¢****Ladies, Boys', Toy and Onion.....75¢@12¢@25¢****Street and Mortar.....75¢@15¢@25¢****Cotton.....75¢@10¢@25¢@25¢****Planters'.....75¢@15¢@25¢@25¢****Weeding.....75¢@10¢@55¢@25¢****Note.—Manufacturers and jobbers use a diversity of lists, and often sell at net prices****Ft. Madison Crucible Garden Hoe.....75¢@10¢@25¢****Ft. Madison Crescent Cultivator Hoe.....\$5.75****Ft. Madison Mattock Hoe, # doz. \$1.00.....\$1.00****Ft. Madison Sprouting Hoe, # doz. \$4.50.....\$4.50****Ft. Madison Dixie Tobacco Hoe.....75¢@10¢@25¢****Kretzinger's Cut Easy, per doz. \$4.50.....\$4.50****Warren Hoe.....60¢@10¢****Hog Rings and Ringers—See Rings and Ringers.****Hoisting Apparatus—See Machines, Hoisting.****Hollow Ware—See Ware, Hollow.****Holders—****Bit—****Angular, # doz. \$24.00.....45¢@10¢****File and Tool—****Nicholson File Holders and File Handles.....33¢@55¢****Hooks—****Cast Iron—****Bird Cage, Reading, &c.....60¢@70¢****Bird Cage, Sargent's List.....50¢@50¢****Ceiling, Sargent's List.....50¢@50¢****Clothes Line, Stowell's.....70¢@55¢****Clothes Line, Reading List.....65¢@10¢@65¢@10¢@10¢****Coat and Hat, Stowell's.....70¢@55¢****Coat and Hat, Reading.....70¢@75¢****Coat and Hat, Sargent's List.....50¢@10¢****Coat and Hat, Wrightsville List.....70¢@10¢****Harness, Reading List.....70¢@10¢@75¢****Wire—****Belt.....80¢@10¢@80¢@20¢****Atlas, Coat and Hat.....50¢@50¢@10¢**

Lemon Squeezers—

See Squeezers, Lemon.

Lifters, Transom—

Dickson:			
3 x 4 ft. x 1/2"	100	\$10.00	
Other sizes 1/2" iron	70	\$10.00	
Other sizes, Brass	70	\$10.00	
Excelsior	60	\$10.00	
Payson's:			
Solid Grip Nos. 303 and 304	100	\$11.00	
Other sizes	70	\$10.00	

Lines—

Wire Clothes, Nos. 13	19	20
100 feet	\$2.50	\$2.25
75 feet		\$1.50
Ossawaun Mills:		
Crown Solid Braided Chalk	33 1/2	
Mason's, No. 0 to No. 5	33 1/2	
Silver Lake Braided Chalk, No. 0, \$6.00;		
No. 1, \$6.50; No. 2, \$7.00; No. 3, \$7.50		
per gr.		30

Locks, &c.— Cabinet—

Cabinet Locks	33 1/2	\$2.25
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Door Locks, Latches, &c.—

[Net prices are very often made on these goods.]

Reading	60	\$6.00
R. & E. Mfg. Co.	50	\$10.00
Sargent & Co.	50	\$6.00
S. B. & Co. Locks, Knobs, &c.	40	\$4.00

Elevator—

Stowell's	33 1/2	
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Padlocks—

Wrought Iron, list Dec 3, '97.	75	\$7.50
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Dog Collar, S. B. Co.	40	
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R. & E. Mfg. Co. Wrt Steel d Erags	50	
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S. B. & Co.	40	
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Sash, &c.—

Fitch's Patent	65	\$10.00
Ives' Patent	65	\$10.00
Payson's Perfect	70	
Payson's Signal (no 1 list)	75	\$10.00
Reading	60	\$10.00

Machines—**Boring—**

Without Augers.

Upright. Angular.

Douglas	\$2.50	\$3.00
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Jennings	2.50	3.00
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Miller's Falls	5.75	
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Snell's, Rice's Pat.	2.50	2.75
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Fluting—

Crown Jewel, 6 in.	\$2.50	\$2.75
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Hoisting—

Moore's Anti-Friction Differential Pulley Block	30	
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Moore's Hand Hoist, with Lock Brake	20	
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Washing—

Wayne American, No. 2,	doz.	\$27.50
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Western Star, No. 2,	doz.	27.50
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Western Star, No. 3,	doz.	30.00
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St. Louis, No. 41,	doz.	88.00
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Mallets—

Hickory	50	\$5.00
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Lignumvite	50	\$5.00
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Tinners', Hickory and Applewood,	doz.	55
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Fiber Head, Stearns'	25	
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Mattocks—

List Feb. 23, 1899	70	\$7.00
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Meat Cutters—

See Cutters, Meat.

Milk Cans—See Cans, Milk.**Mills— Coffee—**

Box and Side, list Jan. 1, '88.	60	\$10.00
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Net prices are often made on some goods which are lower than above discounts.

Enterprise Mfg. Co., list Jan. 17, '93.	30	
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National, list Jan. 1, '94.	30	
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Parker's Columbia and Victor	60	\$10.00
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Parker's Upright	30	\$10.00
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Swift, Lane Bros.	33 1/2	
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Mincing Knives—

See Knives, Mincing.

Molasses Gates—

See Gates, Molasses.

Money Drawers—

See Drawers, Money.

Mowers, Lawn—

Net prices are generally quoted.

Cheap	10	\$1.65
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Medium	12	\$1.70
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High Grade	14	\$1.75
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Pennsylvania and Continental	16	\$1.80
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	18	\$1.85
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	20	\$1.90
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	22	\$1.95
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	24	\$2.00
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	26	\$2.05
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Philadelphia:

All Styles except A and E	70	\$10.00
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Style A, all Steel	60	\$10.00
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Style E, Low Wheel	60	\$10.00
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Style E, High Wheel	60	\$10.00
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Racine	60	\$10.00
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Roasting and Baking—

Columbian, S. S. & Co., Nos. 5, 9 doz.	\$10.00
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\$10.00; \$11.50; 20, \$13; 30, \$15	60
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Simplex No. 98, 9 doz. \$7.00; No. 99,	\$8.50
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Paper—**Building Paper—**

Rosin Sized Sheathing:		
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Light wt., 20 sq. ft. to lb.	\$0.35	\$0.40
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Medium wt., 12 sq. ft. to lb.	\$0.55	\$0.60
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Heavy wt., extra quality	\$0.95	\$1.05
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Barrett's Water Proof Sheathing	\$1.35	\$1.75
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Medium Grades Water Proof	\$0.80	\$1.25
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Sheathing	\$0.80	\$1.25
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Deafening felt, 9, 6 and 4 1/2 sq. ft.		
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to lb., ton.	\$4.50	
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Tarred Paper.

1 ply (roll 300 sq ft.), ton.	\$35.00	\$37.00
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2 ply, heavy, roll 100 sq. ft.	50c	
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2 ply, light, roll 100 sq. ft.	75c	
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3 ply, heavy, roll 100 sq. ft.	\$1.20	
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3 ply, light, roll 100 sq. ft.	\$1.00	
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Sand and Emery—

List April 19, 1886	50c	\$10.00
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Parers—**Apple—**

Advance	doz.	\$4.50
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Baldwin	doz.	\$5.00
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Bonanza	each	\$5.00
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Dandy	each	\$7.50
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Eureka, 1888	each	\$16.00
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Family Bay State	doz.	\$12.00
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Pulleys—

Hay Fork, Swivel or Solid Eye doz. \$1.50
 Hay Fork, Stowell's Anti-Friction, 5-in. Wheel, # doz. \$12.00 40%
 Hay Fork, Stearns' No. 15 & 25 # doz. \$1.75
 Hay Fork, Stearns' Nos. 55 & 66, # doz. \$2.25
 Hay House, Awning, &c. 60@60@10%
 Japanned Clothes Line 60@60@10%
 Japanned Screw 70@10@10%
 Japanned Slide 70@10@10%
 Stowell's Ceiling or End, Anti-Friction 40%
 Stowell's Double Wreath, Anti-Friction 50%
 Stowell's Electric Light 33@4%
 Stowell's Side, Anti-Friction 50%
 Sash (Auger Mortise)
 Common Sense, 1 1/2 in., # doz., 18¢;
 2 in., 20¢.
 Empire 1 1/2 in., 17¢; 2 in., 19¢
 Ideal No. 13 1 1/2 in., # doz., 15¢;
 Improved 1 1/2 in., 17¢; 2 in., 19¢
 Niagara 1 1/2 in., 16¢; 2 in., 17¢
 No. 26, Troy 1 1/2 in., 16¢; 2 in., 17¢
 Star 1 1/2 in., 16¢; 2 in., 17¢
 Acme 1 1/2 in., 18¢; 2 in., 19¢
 Tackle Blocks—See Blocks.

Pumps—

Cistern 65@65¢10%
 Pitcher Spout 75@75¢10%
 Pump Leathers, all sizes, gro. \$6.00
 Flint & Walling's Fast Mail 60%
 Myer's Pumps, low lift 55%
 Contractors' Rubber Diaphragm Non-chokable, B. & L. Block Co. 20%

Punches—

Revolving doz. \$3.50@3.75
 Saddlers' or Drive, good, doz. 60@65¢
 Spring, good quality \$1.70@1.80
 Bemis & Call Co.'s Cast Steel Drive, 50@55%
 Bemis & Call Co.'s Check 55%
 Bemis & Call Co.'s Spring 50@55%
 Niagara Hollow Punches 45%
 Niagara Solid Punches 55%
 Spring, Leach's Pat. 15%
 Steel Screw, B. & K. Mfg. Co. 50%
 Tinnars' Hollow, F. S. & W. Co., 20@25%
 Tinnars' Solid, F. S. & W. Co., # doz., \$1.44 55%

Rail—**Barn Door, &c.—**

Barn Door, Light, 1/2 in. 1/4 5/8 3/4
 100 feet \$1.50 \$1.95 \$2.40
 B. D., for N. E. Hangers:
 Small, Med. Large,
 100 feet \$1.60 2.00 2.50
 Sliding Door, Bronzed Wrt Iron, ft. 61¢
 Sliding Door, Iron Painted, 2 1/2 @ 2 3/4
 Sliding Door, Wrought Brass, 1 1/4
 in. lb. 36¢. 30%
 Cronk's Double Braced Steel Rail, #
 foot 3¢
 Lanes' O. N. T. # 100 ft. \$2.40
 Lanes' Standard, # ft. 34¢
 McKinney's None Better # ft. 24¢
 McKinney's Standard # ft. 34¢
 Moore's, Wrt. Bracket, Steel \$2.40
 Stowell's Steel Rail # ft. 34¢
 Terry's Steel Rail # ft. 34¢

Rakes—

1895 or old list often used:
 C. S. Rakes 60¢10¢5%
 Malleable Rakes 70¢10¢5%
 Association List:
 Cast Steel 75¢5¢2%
 Malleable 70¢10%
 Fort Madison Red Head Lawn \$3.00
 Fort Madison Blue Head Lawn \$2.65

Rasps, Horse—

Diaston's 75%
 New Nicholson Horse Rasp 70@10%
 See also Files.

Razor Stroops—

See Stroops, Razor.

Reels—**Fishing—**

Hendryx Aluminum, German Silver, Gold, Bronze, Silver, Rubber, Populio and Salmon, Single Action, Multiplying and Quadruple, all sizes, 25%
 Hendryx Single Action Series, 102P and PN, 202P and PN, 102P and PN, 302P and PN, 304P and PN, 09304P and PN, 302 and 502N, 502 and 802N, 02054N, Competitor, 50%
 Hendryx Multiplying and Quadruple Series, 3004N and PN, 4N and PN, 2904N, 2904P and PN, 002904P and PN, 0924 and 0924N, 5009N and PN, 40@10%

Registers—

For points on Mississippi River and East:
 Black Japanned 50%
 White Japanned 50%
 Bronzed Finishes 40%
 Nickel Plated 50%
 Electro Plated in Brass, &c. 40%
 White Porcelain 30%
 Solid Brass and Bronze Metal, 25%
 Note—Higher prices are quoted in territory further West.

Rings and Ringers—**Bull Rings—**

Steel 2 1/2 1.00 1.05 doz.
 Copper 1.10 1.20 1.35 doz.

Hog Rings and Ringers—

Hill's Rings, gro. boxes, \$3.25@3.5
 Hill's Ringers, G. L. doz. 50@55¢
 Blair's Rings # gro. \$3.75@4.00
 Blair's Ringers # doz. 55¢@60¢
 Brown's Rings # gro. \$3.75@4.00
 Brown's Ringers # doz. 55¢@60¢
 Perfect Rings # gro. \$7.00@7.50
 Perfect Ringers, # doz. 75@80¢

Rivets and Burrs—

Copper 40¢10¢50%
 Iron or Steel:
 Tinnars' 65@65¢10%
 Miscellaneous 65@65¢10%

Rivet Sets—See Sets.**Roasting and Baking****Pans—See Pans, Roasting and Baking.****Rollers—**

Acme, Stowell's Anti-Friction 50@10%
 Barn Door, Sargent's list, 60@10¢10%
 Lane's, Stay 33@45%
 Stowell's Barn Door Stay, # doz. \$1.00

Rope—

Manila, 7-16 in. and larger, lb. 9 1/2 @ 9 3/4
 Manila, 1/4 inch, lb. 10@10 1/4
 Manila, 1/2 and 5-16 in. lb. 10 1/4 @ 10 3/4
 Manila, Tarred Rope, 15
 thread lb. 9 1/2 @ 9 3/4
 Manila Hay Rope Med'm, lb. 9 1/2 @ 9 3/4
 Sisal, 7-16 in. and larger, lb. 8 1/2 @ 8 3/4
 Sisal 1/4 inch, lb. 9 @ 9 1/4
 Sisal, 1/2 and 5-16 in. lb. 9 1/2 @ 9 3/4
 Sisal, Hay Rope, 2 to 10
 ply lb. 8 1/2 @ 8 3/4
 Sisal, Med'm Lath Yarn, lb. 8 @ 8 1/4
 Cotton Rope:
 Best, 1/4 in. and larger, lb. 13 @ 14 c
 Med'm, 1/4 in. and larger lb. 10 @ 12 c
 Com. 1/4 in. and larger, lb. 8 @ 10 c
 Jute Rope lb. 5 1/2 @ 6 c

Wire Rope—

List Sept. 1, '94. All kinds 7 1/2 @ 2 1/2 @ 2 1/2

Ropes, Hammock—

Covert Saddlery Works 70%

Rules—

Boxwood 75¢10¢10¢10¢10¢75¢10¢10¢
 10¢10¢10¢10¢10¢10¢10¢10¢10¢
 Ivory 40¢10¢10¢10¢10¢10¢10¢10¢10¢
 Luffin's Steel 50@10%
 Atkins' Lumber 40@10%
 Stanley R. & L. Co.,
 Boxwood 75¢10¢10¢10¢10¢10¢10¢10¢10¢
 Ivory 40¢10¢10¢10¢10¢10¢10¢10¢10¢

Sad Irons—See Irons, Sad.**Sand and Emery Paper and Cloth—**

See Paper and Cloth.

Sash Cords—See Cord, Sash.**Sash Locks—See Locks, Sash.****Sash Weights—**

See Weights, Sash.

Sausage Stuffers or Fillers—

See Stuffers or Fillers, Sausage.

Saws—

Note.—Extra 5@10% often given on Circulars, Cross Cuts, &c. and extra 5@7% on Hand, Butcher, &c.

Atkins' Circular 50%
 Atkins' Band 50%
 Atkins' Cross Cuts 40%
 Atkins' Mulay, Mill and Drag 50%
 Atkins' One-Man Saw 40@10%
 Atkins' Wood Saw 40@10%
 Atkins' Hand, Compass, &c. 40%
 Diaston Circular Solid and Insert 50%
 Tooth 50%
 Diaston Band 2 to 14 in. wide 60%
 Diaston Band 1/4 to 1 1/4 70%
 Diaston Crosscuts 50%
 Diaston Narrow Crosscuts 50%
 Diaston Mulay, Mill and Drag 50%
 Diaston Framed Woodaws 35%
 Diaston Wood saw Blades 40%
 Diaston Wood saw Rols 25%
 Diaston Hand saws, Nos. 12, 99, 9, 10, 1100, Ds, 120, 79, 77, 8 25%
 Diaston Hand saws, Nos. 7, 107, 10 1/2, 3, 1, 0, 00, Combination 30%
 Diaston Compass, Keyhole, &c. 25%
 Diaston Butcher Saws and Blades 35%
 C. E. Jennings & Co.'s 25@50@30@5%
 Peace Circular and Mill 45@10%
 Peace Cross Cuts, list Jan. 1, '93, 45@10%
 Pease Hand, Panel and Rip 25@10%
 Richardson's Circular and Mill 45@10%
 Richardson's X Cuts, list Jan. 1, '93, 45@10%
 Richardson's Hand, &c. 25@10%
 Simonds' Circular Saws 45@50%
 Simonds' Crescent Ground Cross Cut Saws 35%
 Simonds' One-Man Cross Cuts 40@10%
 Simonds' Gang Mill, Mulay and Drag Saws 45@45@5%

Hack Saws—

Diaston Concave Blades 25%
 Diaston Keytones 30%
 Diaston Hack Saw Frames 30%
 Griffin's complete 50@50@10%
 Griffin's Hack Saw Blades 50@50@10%
 Star Hack Saws and Blades 15@10%

Scroll—

Barnes' No. 7, #15 25%
 Barnes' Velocipede Scroll Saw, #15 30%
 Barnes' Scroll Saw Blades 40%
 Lester, complete, \$10.00 15@10%
 Rogers, complete, \$4.00 15@10%

Saw Frames—

See Frames, Saw.

Saw Sets—See Sets, Saw.**Saw Tools—See Tools, Saw.****Scale Beams—**

See Beams, Scale.

Scales—

Family, Turnbull's 30@30¢10%
 Hatch, Counter, No. 171, good quality doz. \$17.00@18.00
 Hatch, Tea, No. 161 doz. \$5.75@6.00
 Union Platform, Plain \$2.00@2.10
 Union Platform, Striped \$2.15@2.25
 Chatillon's Eureka 25%
 Chatillon's Favorite 40%
 Chatillon's Grocers' Trip Scales 50%
 Pelouze Scales—Family, Candy, Grocers' and Postal 39@4%
 "The Standard" Portables 45@50%
 "The Standard" R. R. and Wagon 60%

Scrapers—

Box, 1 Handle doz. \$2.00
 Box, 2 Handle doz. \$3.00@4.00
 Ship, No. 1, doz. \$3.50; No. 2, \$2.25@2.40
 Adjustable Box Scraper (S. R. & L. Co.) # doz. 40@10%
 Foot, W. E. Pratt Mfg. Co. # doz. \$1.15@1.25
 Ship, R. I. Tool Co. 10%

Screen Window and Door Frames—See Frames.**Screw Drivers—**

See Drivers, Screw.

Screws—

Bench and Hand—
 Bench, Iron doz. 1 in., \$2.50;
 1 1/4, \$2.65; 1 1/2, \$3.00
 Bench, Wood, Beech, doz. \$2.00@2.20
 Hand, Wood 30¢10¢40¢10%
 Hand, Grand Rapids 35%

Coach, Lag and Hand Rail—

Lag, Common Point, list Jan. 30, '95 75¢10¢5¢80¢5%
 Coach and Lag, Gimlet Point, list Jan. 30, '95 75¢10¢80%
 Hand Rail, list Jan. 1, '81 82 1/2 @ 2 1/2

Jack Screws—

Millers Falls 50@10@10%
 Millers Falls, Roller 50@10%
 S. & W. 40@40@10%
 Sargent 70@10@10%
 Stearns 49@10%

Machine—

List Jan. 1, '98.
 Flat or Round Head, Iron 60%
 Flat or Round Head, Brass 50%

Set and Cap—

Set (Iron or Steel) 75¢75¢10%
 Hd. Cap 70¢70¢10%
 Hex. Hd. Cap 70¢70¢10%

Wood—

List Nov. 10, 1898.
 Flat Head, Iron 85%
 Round Head, Iron 82 1/2 %
 Flat Head, Brass 80¢10%
 Round Head, Brass 75¢10%
 Flat Head, Bronze 75¢10%
 Round Head, Bronze 75%
 Drive Screws 85%
 Note.—An extra 5 or 10% is often given.

Scroll Saws—See Saws, Scroll.**Scythes—**

Grass and Grain 60¢10%

Scythe Snaths—

See Snaths, Scythe.

Seeders—**Raisin—**

Enterprise 25@30%

Sets—**Awl and Tool—**

Brad Awl and Tool Sets:
 Wood Hdle., 10 Awls doz. \$2.00
 Wood Hdle., 14 Awls, 6 Tools doz. \$2.25@2.40
 Aiken's Sets, Awls and Tools:
 No. 20, # doz. \$10.00, 60@10@60@10@5%
 Fray's Adj. Tool Hdle., Nos. 1, #12; 2, #18; 3, #12; 4, #9; 5, #7 50%
 Millers Falls Adj. Tool Hdls, No. 1, #12; No. 4, #12; No. 5, #13 15@10%
 Stanley's Excelsior:
 No. 1, #7.50; No. 2, \$4.00; No. 3, \$5.50 40@10@40@10@5%

Garden Tool Sets—

Ft. Madison Rakes, Shovel and Hoe # doz. \$9.00

Nail—

Round, assorted gro. \$3.00@5.50
 Octagon gro. \$4.00@4.75
 Buck Brothers 27@4%
 Cannon's Diamond Point, # gr. #12, 25%
 Snell's Corrugated, Cup Pt. 50%
 Snell's Knurled, Cup Pt. 60%

Rivet—

Regular list 70@70¢10%

Saw—

Aiken's Genuine # doz. \$4.50@5.00
 Aiken's Imitation # doz. \$3.00@3.10
 Atkin's Criterion # doz. \$6.00
 Atkin's Adjustable # doz. \$6.00
 Bemis & Call Co.'s Cross Cut 30@5%
 Bemis & Call Co.'s Plate 20%
 Bemis & Call Spring Hammer 30@5%
 Diaston's Star and Moon ch 35%
 Hammer, Bemis & Call Co.'s new Pat. 45%

Morrill's No. 1, #15.00 40@20%
 Nos. 3 and 4, Cross Cut, \$23.00, 40@20%
 No. 5, Mill, \$31.00 40@20%
 No. 10, #15.50 40@20%
 No. 11, #16.00 40@20%
 Talntor Positive, # doz. \$18 60%

Sharpeners, Knife—

Tanite Mills # gross, \$14.40 25@33@4%

Shaves, Spoke—

Iron doz. \$1.00@1.25
 Wood doz. \$1.75@2.00
 Bailey's (Stanley R. & L. Co.) 50@10%
 Goodell's, # doz. \$9.00 15@10%
 Stearns' 40@10%

Shears—

Cast Iron, 7 8 9 in.
 Best \$16.00 18.00 20.00 gro.
 Good \$13.00 15.00 17.00 gro.
 Cheap \$9.00 10.00 11.00 gro.
 Straight Trimmers, &c.:
 Good quality 70¢10¢75¢10%
 Second quality 80¢10¢85%
 Acme Cast Shears 40@40@5%
 Davenport Cutlery Co. 60@60@10%
 Heinich's Tailors' Shears 40@40@5%
 Seymour's, list Dec. '81 60@10¢10¢70%
 Seymour's Nickel 50@10¢60@5%
 Seymour's Tailors' Shears 40@40@5%
 Wilkinson's Hedge 50%
 Wilkinson's Sheep 15%

Tinnars' Snips—

Forged Handles, Steel Blades, 20@10%
 Malleable Handles, Laid with Steel, 40%

Forged Handles, Steel Blades, Berlin, 40%**Niagara Snips, 40%****Seymour's, 60@10¢10¢70@5%****Pruning Shears and Tools—**

Diaston's Combined Pruning Hook and Saw, # doz. \$18.00 25@25@10%
 Diaston's Pruning Hook, # doz. \$12.00 25@25@10%
 John T. Henry Mfg. Company:
 Pruning Shears all grades 50@5%
 Orange Shears 50@40%
 Grape 50@10%
 Tree Pruners 75%
 P. S. & W. Co. 60@10¢10¢70@5%
 Seymour's 60@10¢10¢70@5%

Sheaves—Sliding Door—

Stowell's Anti-Friction 50%
 Patent Roller 60@10¢60@10¢5%
 Patent Roller Hatfield's, Sargent's list, 80@10¢80@10¢7%
 Reading 70@10¢75%
 R. & E. 90@10¢60@10¢5%
 Wrightsville, Hatfield Pattern, 80@10%

Sliding Shutter—

Reading list 70@10¢75%
 R. & E. 60@60@10%
 Sargent's list 60@60@10%

Shells—

Brass Shot Shells, Club, Rival, Climax, 65¢2%
 Brass Shot Shells, first quality 60¢2%
 First quality 4, 8, 10 and 12 gauge, 25¢10¢2%

First quality Rival, Club and Climax brands, 14, 16 and 20 gauge (\$7.50 list) 20@10¢2%**New Shot, all gauges, 15¢2%****Quick Shot and Lead, 19¢3@5¢2%****Smokeless brand, 12, 10, 16 gauge, 35¢10¢2%****Star, Club, Rival and Climax Brands, 39¢10¢2%****Trap brand, 12 and 10 gauge, 39¢10¢2%****Shells, Loaded—****Loaded with Black Powder, 40¢5¢10¢10%****Loaded with Nitro Powder, 40¢10¢10¢5¢10¢10¢10¢10%****Loaded with Semi-Smokeless Powder, 40¢10¢10¢10%****Ship Tools—**

L. & I. J. White 25%

Shoes, Horse, Mule, &c.—**Factory Shipments:**

No. 2 and larger, per 100 lbs., \$3.35

Shot—

Drop, up to B, 25-lb. bag, \$1.40@1.45

Drop, up to B, 5-lb. bag 30

Drop, B and larger, 25-lb. bag \$1.65@1.70

Drop, B and larger, 5-lb. bag 35

Buck, 25 lb. bag \$1.65@1.70

Buck, 5-lb. bag 35

Chilled, 25 lb. bag \$1.68@1.73

Dust Shot, 25 lb. bag 2.00

Dust Shot, 5-lb. bag 50

These prices are often shaded 5@

Shovels and Tongs—

Brass Head.....60¢10¢10¢10¢10¢
 Iron Head.....60¢10¢10¢10¢10¢

Sieves and Sifters—

Hunter's Imitation...gro. \$9.00@9.50
 Buffalo Metallic, S. S. & Co., 4 gr.:
 16 16x18 18 18x20
 Blued...\$10.80 \$11.40 \$11.40 \$12.00
 Tinned...11.40 12.00 12.00 12.00
 Eclipse...4 gr. \$9.00@9.50
 Hunter's Genuine...4 gr. \$10.00@10.50
 Shaker (Barber's Pat.) Flour Sifters...
 4 doz., \$2.00.....25¢

Sieves, Wooden Rim—

Mesh 18, N-sted, doz.....\$0.80
 Mesh 20, N-sted, doz......90
 Mesh 24, N-sted, doz.....1.00

Sinks—**Cast Iron—**

High list.....75¢5¢10¢10¢10¢
 Low list.....60¢10¢10¢10¢10¢

Wrought Steel—

Columbus Galv'd and Enamelled, 50¢10¢
 Columbia, Painted.....30¢10¢
 L. & G.....55¢10¢

Slates—

"D" Slates.....50¢10¢50¢10¢10¢
 Unexcelled Noiseless Slates.....
 60¢6 tens@60¢6 tens@5¢
 Wire Bound.....40¢10¢50¢
 Double Slates, add \$1 case, net.

Slaw Cutters—See Cutters.**Snaps, Harness—**

German.....50¢50¢5¢
 Covert Mfg. Co.:
 Bristol.....45¢2¢
 Derby.....45¢2¢
 High Grade.....45¢2¢
 Jockey.....45¢2¢
 Trojan.....45¢2¢
 Covert's Saddlery Works:
 Banner.....75¢
 Crown.....70¢
 Triumph.....70¢
 W. & E. T. Fitch:
 Bristol.....40¢10¢
 Empire.....50¢5¢
 National.....50¢5¢
 Clipper.....50¢10¢5¢
 Champion.....40¢10¢
 Victor.....60¢5¢
 Oreda Community:
 Solid Steel.....65¢65¢10¢
 Solid Steel.....65¢10¢65¢10¢10¢
 Sargent's Patent Guarded.....
 70¢10¢70¢10¢10¢

Snaths—

Scythe.....55¢

Snips, Tinner's—See Shears.**Soldering Irons—**

See Irons, Soldering.

Spoke Trimmers—

See Trimmers, Spoke.

Spoons and Forks—**Silver Plated—**

Flat Ware.....50¢10¢60¢10¢
 Wm. Rogers Mfg. Co.....50¢10¢

Miscellaneous—

German Silver.....60¢10¢
 Wm. Rogers Mfg. Co.:
 185 German Silver.....60¢
 Rogers' Silver Metal.....50¢10¢

Springs—**Door—**

Gem (Coll).....20¢
 Star (Coll).....30¢
 Torrey's Rod, 39 in., 4 doz. \$1.10@1.25
 Warner's No. 1, 4 doz. \$1.50@1.75
 \$3.40.....55¢55¢10¢
 Victor (Coll).....60¢10¢60¢10¢5¢

Carriage, Wagon, &c.

1½ in. and wider...Blk. Hf. Brt. Brt.
 Tested and Temp 5 5¼ 5½c lb
 Oil Tested and
 Tempered.....6 6¼ 6½c lb
 Cliff's Bolster Springs.....40¢2¢
 Cliff's Seat Springs.....4 pair 45¢

Sprinklers, Lawn—

Enterprise.....9¢30¢
 Philadelphia No. 1, 4 doz. \$12; No. 2,
 \$13; No. 3, \$24.....35¢

Squares—

Nickel plated... } List May 1, '95.
 Steel and Iron... } 70¢10¢75¢10¢
 Rosewood Hdl. Try Square and T-
 Bevels.....60¢10¢10¢70¢
 Iron Hdl. Try Squares and T-Bevels,
 40¢10¢40¢10¢10¢
 Disston's Try Sq. and T-Bevels...60¢10¢
 Winterbottom's Try and Miter...50¢10¢

Squeezers—**Lemon—**

Wood, Common, gro., No. 0, \$5.00;
 No. 1, \$6.50; No. 2, \$10.00.
 Wood, Porcelain Lined:
 Cheap.....doz. \$2.50@2.75
 Good Grade.....doz. \$3.00@3.50

Tinned Iron.....doz. \$0.80@1.25
 Iron, Porcelain Lined doz. \$3.25@3.50
 Jennings' Star.....4 doz. \$1.85@1.90
 Klug.....4 doz. \$2.00

Staples—

Barbed Blind.....lb. 8¢5¢
 Electricians', Association list, 80¢10¢
 Fence Staples, same price as Barbed
 Wire. See Trade Report.
 Poultry Netting.....lb. 4¢4½¢
 Grand Crossing Tack Co.'s list.....75¢10¢

Steels, Butchers'—

Dick's.....40¢
 Foster Bros.....40¢
 C. & A. Hoffmann's.....40¢
 Nichols Bros.....50¢
 John Wilson's, list Sept. 1, '94.....25¢

Steelyards—

Blacksmiths'.....35¢40¢
 Gardner.....40¢10¢
 Green River.....25¢
 Lightning Screw Plate.....25¢
 Little Giant.....25¢
 Re ce's New Forew Plates.....25¢30¢
 Reversible Ratchet.....25¢

Stone—**Scythe Stones—**

Pike Mfg. Co., list '95-'96.....33½¢
 Cleveland Stone Co., list Nov., '95.....33½¢

Oil Stones, &c.

Pike Mfg. Co.:
 Hindostan No. 1, 4 doz. \$8¢
 Sand Stone.....5¢
 Turkey Oil Stone, Extra.....33½¢10¢
 Turkey Slips.....\$2.00
 Lily White Washita.....60¢
 Rosy Red Washita.....60¢
 Washita Stone, Extra.....50¢
 Washita Stone, No. 1.....40¢
 Washita Stone, No. 2.....30¢
 Lily White Slips.....90¢
 Rosy Red Slips.....90¢
 Washita Slips, Extra.....80¢
 Washita Slips, No. 1.....70¢
 Arkansas Stone, No. 1, 3 to 5 in. \$2.50
 Arkansas Stone, No. 1, 5 to 8 in. \$3.50
 Tanite Mills:
 Emery Oil, 4 doz. \$5.00.....50¢60¢

Stoners—**Cherry—**

Enterprise.....25¢30¢

Stops, Bench—

Millers Falls.....15¢10¢
 Morrill's...4 doz., No. 1, \$10.00; No. 2,
 \$11.00, 40¢20¢
 Stearns'.....30¢5¢

Stops, Window—

Taplin's.....45¢

Stove Boards—

See Boards, Stove.

Stove Polish—See Polish, Stove.**Straps, Box—**

Cary's Universal.....20¢10¢10¢

Stretchers, Carpet—

Cast Iron, Steel Points.....doz. 70¢75¢
 Cast Steel, Polished.....doz. \$2.25
 Socket.....doz. \$1.75

Stuffers, Sausage—

Miles' Challenge, 4 doz. \$20.....50¢50¢5¢
 Enterprise Mfg. Co., list Jan. 17 '93.....
 25¢25¢7½¢
 National Specialty Mfg. Co., list Jan.
 1, '97.....35¢

Tacks, Brads, &c.—

List Jan. 15, '99.
 Carpet Tacks:
 American Blued.....90¢20¢90¢25¢
 American Tinned.....90¢20¢90¢25¢
 American Cut Tacks.....90¢10¢90¢20¢
 Swedes Iron Tacks.....90¢10¢90¢20¢
 Upholsterers' Tacks, 90¢35¢90¢40¢5¢
 Gimp Tacks.....90¢35¢90¢40¢5¢
 Lace Tacks.....85¢20¢85¢30¢
 Trimmers' Tacks.....90¢10¢90¢20¢
 Looking Glass Tacks.....70¢70¢10¢
 Bill Posters' and Railroad Tack.....
 90¢25¢90¢35¢
 Hungarian Nails.....80¢5¢80¢10¢
 Common and Patent Brads, 75¢75¢5¢
 Trunk and Clout Nails:
 Blued.....80¢10¢
 Tinned.....80¢10¢

Miscellaneous—

Double Point Tacks.....90¢5¢
 Steel Wire Brads, R. & E. Mfg.
 Co.'s list.....50¢10¢60¢
 See also Nails, Wire.

Tanks, Oil—

Emerald, S. S. & Co.....30-gal. \$3.00
 Emerald, S. S. & Co.....60-gal. \$3.75
 Queen City S. S. & Co., 60-gal. each, \$4.00;
 100-gal. \$8.25; 120-gal. \$8.50; 200-
 gal. \$14.00; 250-gal. \$17.75

Tapes, Measuring—

American Asses' Skin.....40¢10¢50¢
 Patent Leather.....25¢25¢10¢
 Steel.....33½¢40¢
 Chesterman's.....25¢25¢5¢
 Keuffel & Esser Co., Steel and Metallic,
 new list, 1898.....35¢
 Lufkin's Steel and Metallic.....
 33½¢33½¢5¢

Thermometers—

Tin Case.....80¢10¢

Ties, Bale—Steel.

Standard Wire.....50¢10¢5¢

Ties, Wall—

Cleveland, Steel.....\$1000, \$10.00

Tinners' Shears, &c.—

See Shears, Tinner's, &c.

Tinware—

Stamped, Japanese and Piced, sold
 very generally at net prices.

Tire Benders, Upsetters,

&c.—See Benders and Upset-

ters, Tire.

Tobacco Cutters—

See Cutters, Tobacco.

Tools—**Coopers—**

L. & I. J. White.....20¢20¢5¢

Saw—

Atkins' new list.....40¢
 Simonds'.....33½¢

Transom Lifters—

See Lifters, Transom.

Traps—Game—

Newhouse.....50¢5¢50¢10¢
 Oneida Pattern.....80¢30¢5¢

Mouse and Rat—

Mouse, Wood, Choker, doz. holes, 3@9c
 Mouse, Round or Square Wire.....
 doz. \$0.85@1.00

Dandy.....4 doz. \$1.75

Mary French Rat and Mouse Traps

(Genuine):

No. 1, Rat.....4 doz. \$15.00

No. 3, Rat.....4 doz. \$5.85

No. 3½, Rat.....4 doz. \$4.50

No. 4, Mouse.....4 doz. \$4.30

No. 5, Mouse.....4 doz. \$3.00

Schuyler's Rat Killer, No. 1, 4 gr. \$15.50

No. 2, 4 gr. \$15.00

Out o' Sight, Mouse, No. 1, 4 doz. 60¢;

Rat, No. 2, \$1.25; Moe, 80¢00;

Gopher, \$1.50; Stop Thief, No. 1,

\$1.25; No. 2, \$1.50.

Fly—

Balloon, Globe or Acme.....
 doz. \$1.25; Gro. \$1.50@1.50

Harper, Champion or Paragon

doz. \$1.50; gro. \$1.70

Trimmers, Spoke—

Bonney's No. 1, 4 doz. \$2.75; No. 2,

Rat, 4 doz. \$9.00.....20¢10¢

Stearns'.....20¢10¢

Trowels—

Disston Brick and Pointing.....30¢
 Disston Plastering.....25¢
 Disston "Standard Brand" and Ga-
 den Trowels.....40¢
 Peace's Plastering.....25¢25¢5¢
 Rose Brick and Plastering.....3¢30¢10¢
 Woodrough & McParlin, Pl'string, 25¢10¢

Trucks, Warehouse, &c.—

B. & L. Block Co.'s list.....40¢
 Daisy Stove Trucks, Improved pattern
 4 doz. \$18.00

Tubs, Wash—

Galvanized, 4 doz. \$5.25 6.00 6.75
 Galvanized S. S. & Co., with Wringer
 Attachment, 4 doz. No. 10, \$6.35;
 No. 20, \$6.75; No. 30.....\$7.50

Twine—

White Sisal, 500 feet to lb.....5¢6¢
 Standard, 500 feet to lb.....9¢c
 Manila, 500 feet to lb.....10¢6¢
 Pure Manila, 500 feet to lb.....10¢6¢

Miscellaneous—

Flax Twine.....BC B.
 No. 9, ¼ and ½-lb. Balls.....20¢ 24¢
 No. 12, ¼ and ½-lb. Balls.....17¢ 20¢
 No. 18, ¼ and ½-lb. Balls.....14¢ 17¢
 No. 24, ¼ and ½-lb. Balls.....14¢ 17¢
 No. 36, ¼ and ½-lb. Balls.....13¢ 16¢
 Chalk Line, Cotton, ½-lb. Balls.....
 18¢20¢

Cotton Mops, 6, 9, 12 and 15 lb. to
 doz.....8¢9¢
 Cotton Wrapping, 5 Balls to lb.....
 9¢10¢

American 2-Ply Hemp, ¼ and ½-lb.
 Balls.....9¢10¢
 American 3-Ply Hemp, 1-lb. Balls.....
 9¢10¢

American 3-Ply Hemp, 1-lb. Balls
 (Spring Twine).....10¢11¢

India 2-Ply Hemp, ¼ and ½-lb.

Balls (Spring Twine).....8¢
 India 3-Ply Hemp, 1-lb. Balls.....8¢
 India 3-Ply Hemp, ½-lb. Balls.....
 7¢6¢

2, 3, 4 and 5-Ply Jute, ½-lb. Balls.....
 6¢7¢
 Mason Line, Linen, ½-lb. Balls.....
 No. 255 Mattress, ¼ and ½-lb. Balls.....
 5¢6¢
 Wool.....5¢6¢

Vises—

Solid Box.....60¢60¢10¢
 Bonney's Saw Vises.....40¢10¢

Parallel—

Bonney's.....40¢10¢
 Fisher & Norris Double Screw.....15¢10¢
 Hollands.....40¢40¢10¢
 Massey's Perfect.....20¢25¢
 Massey's Clincher.....40¢40¢10¢
 Merrill's.....25¢
 Miller's Falls.....45¢10¢
 Parker's.....20¢25¢
 Parker's Oval Slide.....50¢10¢
 Parker's Victor.....30¢
 Prentiss.....70¢10¢70¢10¢10¢
 Sargent's.....70¢10¢70¢10¢10¢
 Simpson's Adjustable.....40¢
 Stephens.....25¢30¢
 Toles' Woodworking.....25¢
 Trenton.....40¢5¢40¢10¢

Saw Filers—

Bonney's, Nos. 2 & 3, \$15.00.....40¢10¢
 Disston's D 3 Clamp and Guide, 4 doz. 2
 \$30.....40¢10¢
 Reading.....40¢10¢
 Stearns' Common, Nos. 0, 1, 2 & 3.....50¢
 Stearns' Rubber Jaw, Nos. 10 & 33, 33½¢
 Wentworth's Rubber Jaw, Nos. 1, 2
 and 3.....40¢

Miscellaneous—

Bignall & Keeler Combination Pipe
 Vise.....60¢5¢

Parker's Combination Pipe:

87 Series.....60¢

187 Series.....60¢5¢

No. 870.....40¢

Wads—Price Per M.

R. E., 11 up.....60¢
 R. E., 9 and 10.....70¢
 R. E., 8.....80¢
 R. E., 7.....80¢

P. E., 11 up.....\$1.00

P. E., 9 and 10.....1.25

P. E., 8.....1.50

P. E., 7.....1.50

Ely's B. E., 11 and larger.....\$1.70@1.75

Ely's P. E., 12 to 20.....\$3.00@3.25

Wagon Jacks—

See Jacks, Wagon.

Ware, Hollow—

Aluminum.....
 B. S. & Co. Reduced List.....40¢

Cast Iron, Hollow—

Stove Hollow Ware:
 Ground.....60¢10¢65¢
 Unground.....60¢10¢10¢70¢

White Enamelled Ware:

Moslin Kettles.....75¢10¢5¢80¢

Boilers and Saucepans.....60¢60¢5¢

Tinned Boilers and Saucepans, 60¢5¢

See also Pots, Glue.

Note.—See Trade Report.

Enamelled—

Agate and Granite Ware, list Jan. 1,
 '94, revised Jan. 2, '95.....40¢10¢

Second Quality.....70¢10¢70¢10¢10¢

Ironclad Enamelled Ware, Old list.....70¢

Never Break Enamelled.....50¢10¢

Tea Kettles—

Galvanized Tea Kettles:
 Inch.....6 7 8 9
 Each.....40¢ 45¢ 50¢ 60¢

Steel Hollow Ware.

Avery Spiders & Griddles.....70¢70¢5¢
 Avery Kettles.....60¢6¢10¢
 Never Break Spiders and Griddles.....
 70¢70¢5¢

Never Break Kettles.....60¢60¢10¢

Solid Steel Spiders & Griddles, 70¢70¢5¢

Entered at the Post Office, New York, as Second-class Matter.

CURRENT METAL PRICES.

JUNE 14, 1899.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market report.

IRON AND STEEL—

Bar Iron from Store—

Common Iron: Duty, Round, 0.6¢ per lb; Square, 0.8¢ per lb
1 to 1½ in. round and square... 1.90¢ @ 2.00¢
1½ to 4 in. x ¾ to 1 in. 2.20¢ @ 2.30¢

Refined Iron:
1 to 1½ in. round and square... 2.0¢ @ 2.10¢
1½ to 4 in. x ¾ to 1 in. 2.20¢ @ 2.30¢
Angles:
3 in x ¾ in. and larger... 2.30¢
1½ to 2½ in. x ¾ in. and heavier... 2.0¢
1 to 3 in. x 3-16 in. 2.5¢
1 to 3 in. x ½ in. 2.6¢

Tees:
1 in. 2.70¢
1½ to 2½ in. 2.50¢
3 in. and 4 in. 2.40¢
Beams:
Channels... 2.70¢
Rods—¾ and 1-16 round and 1 in. square... 2.20¢ @ 2.30¢
Rods—1 to 6 x 3-16 to No. 12... 2.50¢ @ 2.60¢
"Burden's Best" Iron, base price... 3.00¢
Burden's "H. B. & S. Iron, base price... 2.80¢
"Clister" Iron... 2.80¢
Norway Bars... 3.50 @ 4.00¢
Norway Shapes... 4.00 @ 4.25¢

Merchant Steel from Store—

Open Hearth and Bessemer Machinery... 2.10 to 2.40¢
Tie Calk, Tire and Sleigh Shoe... 2½ to 3¢
Best Cast Steel, base price in small lots... 7¢
Best Cast Steel Machinery, base price in small lots... 5¢

Soft Steel Sheets—

¼ inch... 2.75¢ No. 14... 3.00¢
3-16 inch... 2.85¢ No. 16... 3.10¢
No. 8... 2.85¢ No. 18... 3.20¢
No. 10... 2.90¢ No. 20... 3.25¢
No. 12... 2.55¢ No. 22... 3.30¢

Sheet Iron from Store.

Black.

Common * R. G. Cleaned American.

Nos. 10 to 16... 3.00¢
Nos. 17 to 21... 3.10¢
Nos. 22 to 24... 3.20¢
Nos. 25 and 26... 3.30¢
No. 27... 3.40¢
No. 28... 3.50¢

Russia, Planished, &c.

Genuine Russ a. according to assortment... 10¢
Patent Planished... 8¢
Patent Planished Sheet Steel... 8¢

Galvanized.

Nos. 10 to 16... 12¢
Nos. 17 to 21... 13¢
Nos. 22 to 24... 14¢
Nos. 25 to 26... 15¢
No. 27... 16¢
No. 28... 17¢
No. 30... 18¢
No. 32... 19¢
30 in. 1¢ per lb higher.

Foreign Steel from Store—

Best Cast... 14¢
Extra Cast... 16¢
Swaged, Cast... 16¢
Best Double Shear... 16¢
Blister, 1st quality... 12¢
German Steel, Best... 10¢
2d quality... 8¢
3d quality... 8¢
Sheet Cast Steel, 1st quality... 14¢
2d quality... 13¢
3d quality... 11¢
K. Mushet's "Special" Annealed... 40¢
"Titanic"... 19¢
Hobson's Choice XX Extra Best... 35¢
Jesseff Self Hardening... 40¢
Seamans' "Nelson" Steel... 40¢
Hobson Self Hardening... 40¢

METALS—

Tin—

Duty.—Pigs, Bars and Block. Free. Per lb
Banca, Pigs... 28¢
Straits, Pigs... 27¢
Straits in Bars... 25¢

Tin Plates—

American Charcoal Plates.
Calland Grade:
IX, 14 x 20... \$0.25 @ \$0.50
IX, 14 x 20... 7.75 @ 8.00
Meyn Grade:
IX, 14 x 20... 5.00
IX, 14 x 20... 7.25
Allway Grade:
IX, 14 x 20... 5.25
IX, 14 x 20... 6.25

American Coke Plates—Bright—

IX, 14 x 20... \$4.50 @ 4.60
IX, 14 x 20... 5.40 @ 5.50
IXX, 14 x 20... 6.00 @ 6.15

American Terne Plates—

IX, 20 x 28... \$0.00 @ 0.50
IX, 20 x 28... 11.0 @ 11.50

Tin Boiler Plates, American—

IXX, 14 x 20... 112 sheets... \$10.50
IXX, 14 x 20... 112 sheets... 11.45
IXX, 14 x 31... 112 sheets... 12.95

Copper—

Duty: Pig, Bar and Ingot and Old Copper free
Manufacturers, 2½¢ per lb.

Ingot—

Lake... 20¢
Ansonia grade Casting... 19¢

Sheet and Bolt—

February 2, 1899.

Prices, in cents per pound.

Sheet 20 x 60.

Net.

Not wider than

Not longer than

And longer than

64 oz. & over, 9 lb. sheet, 30 x 60 and heavier.

30 oz. to 40 oz. 25 to 30 lb.

24 oz. to 30 oz. 16 ½ to 25 lb.

16 oz. to 24 oz. 12 ½ to 15 lb.

14 oz. and 15 oz. 11 to 12 ½ lb.

12 oz. and 11 oz. 9 ½ to 11 lb.

10 oz. and 9 oz. 7 ½ to 9 ½ lb.

8 oz. and 7 ½ lb. 6 ½ to 7 ½ lb.

Lighter than 8 oz.

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Common High Brass.

Wider than

and including

To No. 20, inclusive... 39

Nos. 21, 22, 23 and 24... 40

Nos. 25 and 26... 41

Nos. 27 and 28... 42

* Special prices not less than 80 cents.

Add ½¢ additional for each number thinner than Nos. 28 to 38 inclusive. Discount from List... 10¢

Wire in Coils. List February 26, 1899.

Brown & Sharpe's gauge the standard.

Com. high brass.

Low brass.

Gild'd bronze and copper

All Nos. to No. 10, inclusive... \$0.23

Above No. 10 to No. 16... 23¢

No. 17 and No. 18... 24

No. 19 and No. 20... 25

No. 21... 26

No. 22... 27

No. 23... 28

No. 24... 29

No. 25... 30

No. 26... 31

No. 27... 32

No. 28... 33

No. 29... 34

No. 30... 35

No. 31... 36

No. 32... 37

No. 33... 38

No. 34... 39

No. 35... 40

No. 36... 41

No. 37... 42

No. 38... 43

No. 39... 44

No. 40... 45

Discount, Brass Wire, 10%; Copper Wire, Net.

List November 16, 98.

Spring Wire, 2¢ additional advance.

Spelter—Duty: In Blocks or Pigs, 1¢ per lb.

Western Spelter... 7¼ @ 7¾¢

Zinc.

Duty: Sheet, 2¢ per lb.

600 lb casks... 8.40¢ Per lb... 0¢

Lead.

Duty: Pigs and Bars and Old, 2½¢ per lb. Pipe and Sheets, 2½¢ per lb.

American Pig... 4¼ @ 4½¢

Bar (full lengths), subject to discount 20%... 5¼¢

Pipe (full lengths), subject to discount 20%... 7¼¢

Tin Lined Pipe, subject to discount 20%... 12¼¢

Block Tin Pipe, subject to discount 20%... 37¼¢

Sheet (full rolls), subject to discount 20%... 7¼¢

Sheet (cut rolls), subject to discount 20%... 8¼¢

Old Lead in exchange, 4¢ per lb.

½ & ¾, guaranteed... 17¢

No. 1... 15¼ @ 16¢

Prices of Solder indicated by private brand vary according to composition.

Antimony—

Duty, ¾¢ per lb.

Cookson... 11¼¢

Hallett... 10¼¢

U.S... 10¼¢

Aluminum—

Duty: Crude, 8¢ per lb. Plates, Sheets, Bars and Rods 13¢ per lb.

No. 1 Aluminum (guaranteed over 99.75% pure), in ingots for remelting:

Small lots... 37¢

100-lb lots... 35¢

No. 2 Aluminum (guaranteed to be over 90% pure), in ingots for remelting:

Small lots... 34¢

100-lb lots... 33¢

Special casting Alloy, containing over 80% pure Aluminum:

Small lots... 35¢ @ 100-lb lots... 30¢

Aluminum Rods, from ¾-in. diam. to 1 in. diam. 50¢

Aluminum Sheet, B. & S. gauge. 50 lb or more.

Wider than... 6-in. 14-in. 24-in.

And including... 14-in. 24-in. 30-in.

Nos. 13 to 19... \$0.38 \$0.40 \$0.43

No. 20... 40

No. 21 to 23... 42

No. 24... 44

No. 25... 46

No. 26... 48

No. 27... 50

No. 28... 52

No. 29... 54

No. 30... 56

Note.—Lots of less than 50 lb 5¢ per lb extra.

Aluminum Wire, B. & S. Gauge.

Larger than No. 9... 55¢ No. 17 to No. 20... 50¢

No. 9 to No. 16... 55¢ No. 21... \$0.15

Old Metals.

Dealers' Purchasing Prices Paid in New York.

Heavy Copper... \$14¼¢

Light and Annealed Copper... 13¼¢

Heavy Brass... 11¼¢

Light Brass... 10¼¢

Lead... 8.95¢

Tin Lead... 8.95¢

Zinc... 5¼¢

No. 1 Pewter... 17¼¢

No. 2 Pewter... 10¢

Tin Plate Scrap... \$10.00

Wrought Scrap Iron... \$8.50

Heavy Cast Scrap... \$8.50

Stove Plate Scrap... \$8.50

Burnt Iron... \$8.50

